

THE EFFECTIVENESS OF EXPLICIT STORYBOOK COMPREHENSION INSTRUCTION
FOR IMPROVING PRESCHOOL CHILDREN'S NARRATIVE COMPREHENSION SKILLS

By

Copyright 2015

Ruby J. Chan

Submitted to the graduate degree program in the Department of Special Education and the
Graduate Faculty of the University of Kansas in partial fulfillment of the requirements for the
degree of Doctor of Philosophy.

Chairperson: Judith J. Carta, Ph.D.

Barbara A. Bradley, Ph.D.

Charles R. Greenwood, Ph.D.

Eva M. Horn, Ph.D.

Barbara J. Thompson, Ph.D.

Date Defended: May 7, 2015

The Dissertation Committee for Ruby J. Chan

certifies that this is the approved version of the following dissertation:

THE EFFECTIVENESS OF EXPLICIT STORYBOOK COMPREHENSION INSTRUCTION
FOR IMPROVING PRESCHOOL CHILDREN'S NARRATIVE COMPREHENSION SKILLS

Chairperson: Judith J. Carta, Ph.D.

Date approved: _____

Abstract

While shared book reading has often been used to foster children's language and literacy development (Pentimonti, Justice, & Piasta, 2013), there is limited research concerning specific instructional strategies that can be embedded during shared book reading to facilitate children's story comprehension abilities. To close this gap, the present study examined the effectiveness of implementing explicit storybook comprehension instruction in a single-case study with seven preschool-age participants. Using a combined repeated acquisition and multiple-baseline design (e.g., Kennedy, 2005), the study assessed narrative comprehension growth via mastery monitoring and progress monitoring measures (i.e., Assessment of Comprehension and Preschool Early Literacy Indicators). All seven participants demonstrated comprehension growth as a result of the intervention. Large effect sizes were found. Implications for employing a Tier 2 supplemental comprehension intervention within a Multi-Tiered System of Support are discussed.

Keywords: Story comprehension, narrative comprehension, MTSS/RTI, Tier 2, shared reading

ACKNOWLEDGEMENTS

I have been blessed to meet many wonderful and supportive people throughout the journey of my doctoral program. I would like express my sincere appreciation and gratitude to friends and colleagues who have helped me achieve this goal. While there are many who should be acknowledged, below are just a few.

First and foremost, I would like to thank my advisor, Dr. Judith Carta, who has been a tremendous mentor for me. You provided me with invaluable learning experiences, encouraged me to think critically, and supported me with your expertise and feedback in order to see me succeed. Thank you for inspiring me to pursue my dreams and believe in myself.

I am truly thankful to Dr. Charles Greenwood for his support and guidance on several research projects throughout my doctoral studies, including this dissertation project. You have taught me to think like a researcher.

I am also exceedingly thankful to Dr. Eva Horn for giving me opportunities to teach with you in several classes. Thank you for all the words of encouragement and guiding me towards the right path in my difficult times.

A sincere thank you to Dr. Barbara Thompson for helping me with recruitment for this study and your support throughout my program. I will never forget your kind words and encouragement.

Thank you also to my supportive and flexible dissertation committee member, Dr. Barbara Bradley, for your unique insight and expertise on this dissertation.

My deepest appreciation goes to the teachers, staff, and children who took part in this study. Thank you for your participation and support to my dissertation research.

I especially want to show my gratitude to my friends for their encouragement and support: Gabriela Guerrero, Danny Hajovsky, Chia-Fen Liu, Jen Robertson, Hyojeong Seo, and Hsiang-Yi Wu. A special thanks to Sookyung Shin and Tracy McElhattan for providing me emotional and practical support along the way.

To my parents, thank you for your unconditional love and support. You have always believed in me and given me strength. To my husband, I could not have gotten through these challenging years that seemed to have no end without you. Thank you for your understanding, patience, and support. Finally, and of utmost importance, I thank my Lord Jesus Christ. Thank you for your blessing everyday.

Table of Contents

CHAPTER 1: INTRODUCTION	1
CHAPTER 2: LITERATURE REVIEW	5
Narrative Comprehension	5
Shared Book Reading	6
Story Grammar.....	9
Inferential Skill	10
Scaffolding.....	13
Multi-Tiered System of Support (MTSS)	15
Conceptual Framework of this Study	21
Research Questions	23
CHAPTER 3: METHOD	24
Participants.....	24
Setting	26
Story Comprehension Intervention	26
Measurement.....	29
Design and Procedure	36
Data Analysis	38
CHAPTER 4: RESULTS	39
CHAPTER 5: DISCUSSION.....	42
REFERENCES	51

List of Tables

Table 1. Participant Characteristics	67
Table 2. Participants Language Skills at Start of Study.....	68
Table 3. Children's Point Earning on Mastery Monitory Probes by Conditions	69
Table 4. Children's Assessed Comprehension Skills on the Two Progress Monitoring Measures by Conditions	70

List of Figures

Figure 1. Conceptual framework of the explicit storybook comprehension instruction.....	71
Figure 2. Comprehension scores on the mastery monitoring probes for Child A and E	72
Figure 3. Comprehension scores on the mastery monitoring probes for Child F and B.....	73
Figure 4. Comprehension scores on the mastery monitoring probes for Child C, D, and G	74
Figure 5. The ASC Scores for Child A and E.....	75
Figure 6. The ASC scores for Child F and B.....	76
Figure 7. The ASC scores for Child C, D, and G	77
Figure 8. The PELI Comprehension subtest scores for Child A and E	78
Figure 9. The PELI Comprehension subtest scores for Child F and B.....	79
Figure 10. The PELI Comprehension subtest scores for Child C, D, and G	80

List of Appendices

Appendix A: Teacher Consent Form	81
Appendix B: Parent Consent Form	84
Appendix C: Child Demographic Questionnaire.....	87
Appendix D: Story Questions	88
Appendix E: Story Script Sample	90
Appendix F: Fidelity of Implementation Checklist	93
Appendix G: Intervention and Assessment Schedule.....	95

CHAPTER 1: INTRODUCTION

For many years, educators and policymakers in the United States have sought to improve young children's early academic readiness (Kagan & Rigby, 2003; The National Education Goals Panel, 1997; White House, 2013). The research studies arising from this pursuit have identified children's early literacy skills as an important component of their early academic readiness (National Early Literacy Panel, 2008). Children are more likely to be struggling readers throughout their school years if their early literacy skills fall behind normative expectations prior to formal schooling (Cunningham & Stanovich, 1997; Tabors, Snow, & Dickinson, 2001).

Poor reading development can reduce children's ability to understand texts across all subject areas (Chall, Jacobs, & Baldwin, 1990; DeBruin-Parecki & Pribesh, 2015), thereby lowering their potential for academic success and increasing their risk of lifelong economic and social failure (Maughan & Hagell, 1996; Maughan, Hagell, Rutter, & Yule, 1994; Snow, Burns, & Griffin, 1998). Therefore, if programs aim to improve children's likelihood of becoming successful readers, it behooves educators to identify those children who are at risk of later reading failure prior to formal schooling and provide them with responsive interventions (Curenton, Justice, Zucker, & McGinty, 2013).

To that end, considerable research has been conducted in the last decade with regard to identifying and developing effective interventions, programs, and instructional practices that promote children's early literacy development (National Early Literacy Panel, 2008). However, most of the research on instructional literacy practices is oriented around code-focused

instruction, such as phonological awareness and print knowledge tasks (Dickinson, Golinkoff, & Hirsh-Pasek, 2010; Lonigan, Schatschneider, & Westberg, 2008; Storch & Whitehurst, 2002).

While those skills are valuable, it is equally imperative that children acquire comprehension skills. A growing number of studies have documented that understanding oral language in early childhood is an important precursor to reading comprehension (Dooley & Matthews, 2009; Goodman & Goodman, 2009; Kendeou, van den Broek, White, & Lynch, 2009; Paris & Paris, 2003). Thus, in order to become successful readers, children need both the ability to decode and comprehend.

However, as Dickinson et al. (2010) notes, relatively little research has been conducted on language-related instruction in early education, which implies that children's oral language development and conceptual knowledge development might be an overlooked area of study. Nonetheless, the literature is clear on this fact: Comprehension instruction must begin at a very young age, prior to formal schooling, to help lay the foundation for future reading success (Dooley, 2010; Kendeou, van den Broek, White, & Lynch, 2007; Paris & Paris, 2003). Early literacy acquisition helps outfit children with a tapestry of code, content, and language structure that is integral to enhancing their oral language and conceptual knowledge development.

Researchers report that promoting preschool children's narrative comprehension abilities helps to support their reading comprehension competence in later school years (Kendeou et al., 2007; Kendeou et al., 2009; Tompkins, Guo, & Justice, 2013). Studies indicate that individual differences in comprehension skills appear around age four: These skills include the recall of story events, the ability to make causal connections between events in short stories, and the

ability to draw inferences between characters' actions and motivation (Kendeou et al., 2007; Lynch et al., 2008). Researchers report that comprehension skills in the preschool years predict later reading comprehension (Griffin, Hemphill, Camp, & Wolf, 2004; Kendeou et al., 2007). Children who demonstrated reading comprehension problems at age 8 showed listening comprehension difficulties at age 5 (Nation, Cocksey, Taylor, & Bishop, 2010). Furthermore, children who demonstrate delays in comprehension skills in the preschool years continue to lag behind relative to their more competent peers throughout formal schooling (Cain, Oakhill, & Bryant, 2000; Nation et al., 2010). Thus, improving preschool children's narrative comprehension development should be a central goal during the preschool and kindergarten years.

Despite the importance of enhancing preschool children's narrative development, there are very few evidence-based interventions available that specifically focus on improving children's narrative comprehension development. One commonly used practice within early childhood is shared book reading. Shared book reading allows teachers to engage children in an interactive discussion and foster their language comprehension (Ezell & Justice, 2005). However, some children struggle to acquire comprehension skills during class-wide reading activities (i.e., the Tier 1 or universal level of MTSS). In such cases, teachers need explicit strategies for addressing those comprehension delays. At this point, there is limited research available on examining the effectiveness of specific strategies that can be embedded during shared book reading to facilitate children's story comprehension skills (Cunningham & Zibulsky, 2011). In response to this gap, the present study aims to explore the effectiveness of

implementing explicit comprehension instruction in storybook reading as a means of improving preschool children's story comprehension skills.

Organization of the Dissertation

This dissertation is organized into five chapters. This first chapter provides a general introduction to the study topic. Chapter 2 offers a review of the literature most relevant to this study as well as a conceptual framework and a set of research questions that guided the study. Chapter 3 describes the study methodology which encompasses the participants, measurement, experimental research design, and analytical method. Chapter 4 presents the results of the study. Chapter 5 summarizes and discusses the major findings, delineates the study's limitations, and outlines recommendations for future research. Appendices with relevant study documentation are also provided.

CHAPTER 2: LITERATURE REVIEW

This chapter reviews the literature foundational to this study's purpose, methods, and results, specifically focusing on the following topics: (a) the development of children's narrative comprehension, (b) the role of shared book reading as a medium for promoting vocabulary and comprehension in young children, (c) existing studies on story grammar instructions, (d) the role of inferential skills in narrative comprehension, (e) the use of scaffolding techniques for improving children's comprehension skills, and (f) a description of the common features of Multi-Tiered Systems of Support (MTSS) and studies of story comprehension interventions that have been carried out within MTSS.

Narrative Comprehension

Similar to reading comprehension, narrative comprehension is a multidimensional skill that involves several subskills including vocabulary, morphosyntactic skills, literal and inferential reasoning, and text-structure knowledge (Curenton et al., 2013; Tompkins et al., 2013). According to Kendeou et al. (2007), "A general component in many definitions of comprehension is the interpretation of the information in the text, the use of prior knowledge to interpret this information and, ultimately, the construction of coherent representation or picture in the reader's mind of what the text is about" (p. 28). When comprehending a story, children must construct an understanding of story language and structure by relating ideas from the story to their prior knowledge, recalling sequences of the story, connecting new words to known concepts and experiences, and making predictions of what will happen next in the story (Kendeou et al., 2009; McKeown & Beck, 2006; van den Broek et al., 2005).

Studies have found that some individuals with poor narrative story comprehension skills may have good vocabulary skills, but they have weak language comprehension skills (Cain et al., 2000; Stothard & Hulme, 1992). These findings suggest that though single-word vocabulary knowledge is critical to language comprehension, it cannot ensure adequate comprehension. The inability to make links between events in texts that one reads or hears is a fundamental feature of poor comprehenders. Thus, poor comprehenders struggle to understand complex discourse. To be a good comprehender, one needs to be able to construct good mental models of texts and to produce coherent and integrated narratives (Cain & Oakhill, 1999; Cain, Oakhill, Barnes, & Bryant, 2001; Catts & Weismer, 2006). Shared book reading has been identified as an ideal activity for fostering narrative comprehension skills that can provide children with the critical foundation for future reading success (Pentimonti et al., 2013; van Kleeck, 2008).

Shared Book Reading

The value of reading aloud to children is well documented in the research literature (Ezell & Justice, 2005; Snow et al., 1998; Whitehurst et al., 1994). One widely recommended practice within early childhood literacy instruction is shared book reading (National Early Literacy Panel, 2008; Pentimonti et al., 2013). During shared book reading, an adult uses a variety of strategies (e.g., asking open-ended questions, repeating and expanding a child's response to questions, and modeling good word reading and comprehension) to provide children with several opportunities to interact verbally (Ezell & Justice, 2005; Hindman, Wasik, & Erhart, 2012). A number of studies have reported that shared book reading facilitates children's growth in many areas of early literacy including vocabulary, print awareness, and sentence structure (Bus, Van Ijzendoorn,

& Pellegrini, 1995; Ezell & Justice, 2005; Pentimonti et al., 2013; Wasik & Hindman, 2014; Whitehurst et al., 1994).

Shared book reading is similar to other reading practices such as dialogic reading, in that both aim to engage children with the text in an interactive way, but shared book reading may or may not include a specific set of prescribed procedures (Ezell & Justice, 2005). By contrast, dialogic reading typically entails an adult prompting the child to say something about the book by using a specific set of techniques and procedures in which the adult repeats, recasts, and/or expands the child's contribution, thereby producing a cycle of dialogue. Unlike shared book reading practice, dialogic reading is less about engaging the child in the text and more about facilitating language interaction around the book (Zevenbergen & Whitehurst, 2003).

To date, the majority of studies on shared book reading have focused primarily on vocabulary, receptive and expressive language skills, and later decoding and reading skills (DeBruin-Parecki, van Kleeck, & Gear, 2015; Swanson et al., 2011). Although these studies provide abundant literature of the benefits of shared book reading, there is limited research describing how shared book reading can be used effectively to promote children's story comprehension abilities (Cunningham & Zibulsky, 2011). However, evidence shows that there is a differential relationship to children's story comprehension based on a variety of shared book reading interaction styles as reported by McKeown and Beck (2006).

For example, Dickinson and Smith (1994) conducted a descriptive study to examine the relationships between preschool teachers' shared book reading interaction styles and children's vocabulary growth and story understanding. Their study encompassed 25 classrooms serving

four-year-old children from low-income families. The results indicated that children whose teachers involved them in analytical discussions (e.g., explaining characters' motivation, predicting upcoming events, making connections between the text and real-life experiences, and describing vocabulary meanings) had higher rates of vocabulary growth and gains in comprehension than children whose teachers focused primarily on object labeling and direct recall questions during story reading

Similarly, Teal and Martinez (1996) conducted a descriptive study to investigate the relationship between kindergarten teachers' reading styles and the story comprehension of children in their classrooms. In this study, the comprehension measure used was children's story retelling. When teachers promoted classroom discussion of important story elements (e.g., initiating events, attempts, and consequences) and the internal aspects of stories (e.g., character motivation and reactions), children in their classes showed significantly higher performance on the comprehension measure.

Moreover, Brabham and Lynch-Brown (2002) conducted an experimental study comparing the effects of three different shared book strategies on first-grade children. Teachers and their classrooms were randomly assigned to one of the three treatment conditions, which represented the three shared book reading styles: (a) just-reading, in which teachers did not ask questions or make comments during reading, (b) performance-reading, in which teachers asked questions and made comments only at the end of reading, and (c) interactive-reading, in which teachers discussed words and concepts before, during, and after reading. The authors reported

that the interactive style promoted more growth in comprehension than the other two reading styles.

Story Grammar

To comprehend a narrative, children need more than vocabulary knowledge and the ability to connect sentences in the text; they also need to understand how the events in the story are related (Trabasso, Secco, & van den Broek, 1984). Hence, they need to understand story grammar—that is, the internal structure of simple narrative stories—which commonly includes five major elements organized in a particular sequence: character, setting, problem, actions, and resolution (Mandler & Johnson, 1977; Stein & Glenn, 1979). Research shows that instructing children on the essential components of story grammar during shared book reading is an effective teaching strategy for enhancing their narrative comprehension skills (Stein & Glenn, 1979). By learning to recognize these elements of plot during reading, children gain a conceptual framework that helps them adequately and accurately comprehend a narrative (Lynch et al., 2008; Makdissi & Boisclair, 2006). This understanding then allows children to follow the sequence of events and find personal meaning in the story (Duchan, 2004).

Children between the ages of three and four are able to construct basic stories using some of the aforementioned structural components. During this time, however, these children are still developing the skills necessary to connect the narrative's main events with their own experiences (Paris & Paris, 2008; Trabasso & Nickels, 1992). Applebee (1978) suggests that, in order to support children's understanding of a story, they should be guided to think about narrative structure in terms of story grammar elements. In line with this, a few studies indicate that

children's ability to connect causes and consequences across story events can be improved when adults include questions about story grammar elements during interactive reading (Hayward & Schneider, 2000; Morrow, 1984; Stein & Glenn, 1979; van Kleeck, 2008). Most of the studies using story grammar probes as a strategy for improving comprehension skills have focused on kindergarten and early elementary school children (e.g., Bui, 2002; Dimino, Gersten, Carnine, & Blake, 1990; Garner & Bochna, 2004; Morrow, 1984; Pressley & Wharton-McDonald, 1997; Short & Ryan, 1984). While researchers suggest that this type of intervention can be adapted "downward" to preschool-age children (Kendeou, Bohn-Gettler, White, & Van Den Broek, 2008; van Kleeck, 2008), no studies to date have attempted to carry out such an adaptation or to see if these narrative comprehension skills can be taught to preschool-aged children in a developmentally appropriate way.

Inferential Skill

Inferential language skills are critical for children's comprehension of narrative stories. Inferential reasoning requires readers (or listeners) of a story to go beyond information that is explicitly stated in the text, and then connect the main events in the story while interpreting events in the narrative in relation to their prior knowledge (Cain, Oakhill, & Bryant, 2004; Kendeou et al., 2008; van Kleeck, 2008). For example, when reading *Three Little Pigs*, a reader needs to have the prior knowledge that bricks are a stronger building material than sticks and straw in order to understand why the wolf could not blow down the house made of bricks. Researchers have reported that children's story comprehension skills are associated with their inferential skills (Kendeou et al., 2008; Lepola, Lynch, Laakkonen, Silvén, & Niemi, 2012), and

these skills provide a critical foundation for the development of later reading comprehension. Furthermore, research shows that inference difficulties lead to reading comprehension failure, but this relationship is not true in reverse (Cain & Oakhill, 1999; Cain et al., 2001). As Duke, Pressley, and Hilden (2004) indicated, problems with inferential ability are the “hallmark of poor comprehension” (p. 512).

A growing body of research indicates that preschool children are capable of engaging in inference generation (Tompkins et al., 2013; van den Broek et al., 2005). From the age of four, children are able to use goals and causal information in stories to make inferences (van den Broek et al., 2005; Wenner, 2004). Though younger children are capable of engaging in inferential thinking, some studies suggest that they are less likely than older children to make inferences unless encouraged by adults (Lynch & Lepola, 2015). Therefore, some researchers suggest that teachers should provide explicit inferencing instruction to young children who are experiencing delays in comprehension (Kendeou et al., 2008; Oakhill & Cain, 2004).

One experimental study by van Kleeck, Vander Woude, and Hammett (2006) investigated how children’s inferential skills are affected by embedding questions into shared book reading. The authors conducted a randomized study with 30 children who were enrolled in Head Start preschool programs. Children were randomly assigned to either a no-treatment control group or a treatment group that received a one-on-one book sharing intervention for eight weeks. The researchers embedded scripted questions into a storybook text and then modeled appropriate responses as necessary. Among the inferential questions included in the script were those that asked children to identify a character’s feeling, explain a character’s feeling or

motivation, and predict a character's actions. Children in the intervention group demonstrated higher rates of growth on both literal and inferential language than those in the control group, as measured by the Preschool Language Assessment Instrument (PLAI, a generalized measure of inferencing; Blank, Rose, & Berlin, 2003).

On the qualitative side, Zucker, Justice, Piasta, and Kaderavek (2010) conducted a descriptive study to investigate whether preschool teachers' use of literal and inferential questions during whole-class shared book reading is related to children's complex inferencing. The researchers observed 25 classrooms specifically looking at the types of questions that teachers asked during shared book reading and children's responses to those questions. The authors reported that the level of teachers' questions and children's responses were significantly associated. For example, when a teacher asked low-level inferential questions (e.g., "What happened?"), a child was more likely to give a text-related answer (e.g., "He dropped a cup"). However, when a teacher asked high-level inferential questions (e.g., "Do you think he's excited to get on the airplane?"), a child was more likely to provide an answer at a complex level of inference (e.g., "Yes, he's excited cuz he's running.").

Despite the frequently recommended practice that adults embed inferential questions during shared book reading for preschool children, only one study (van Kleeck et al., 2006) to date has demonstrated that embedding inferential questions during shared book reading is effective for improving preschool children's comprehension skills. However, in this study, the effectiveness of the intervention was tested by asking children to respond to inferencing questions about a picture rather than their understanding of story narrative. Thus, the literature

still lacks a method of explicit comprehension instruction that can be embedded into storybook reading in order to improve children's narrative comprehension skills.

Scaffolding

Scaffolding is an instructional technique in which adults provide children with the intentional and strategic support they need to develop skills that are not yet mastered (Vygotsky, 1978; Wood, Bruner, & Ross, 1976). Scaffolding has been used successfully to teach language and early literacy skills to young children with language delays and children at risk (e.g., Bellon, Ogletree, & Harn, 2000; Craig-Unkefer & Kaiser, 2002; Kaiser, Hester, & McDuffie, 2001; Kouri, 2005; Skibbe, Behnke, & Justice, 2004; van Kleeck et al., 2006). In language and literacy intervention, scaffolding support often involves an adult engaging in the following behaviors: (a) intentionally offering opportunities to the child to engage in the desired skills; (b) applying a various degree of instructional support based on the child's current level of skill competence; (c) systematically adjusting the amount and type of scaffolding techniques; and (d) withdrawing scaffolding support after the child learns the desired skills (Bellon et al., 2000; Franke & Durbin, 2011; Kaiser, Yoder, & Keetz, 1992; Taylor & Harris, 1995; Ukrainetz, 2007).

Applications of scaffolding strategies range from low-level support with minimal adult assistance to high-level support with more structured adult assistance (McGee & Ukrainetz, 2009; O'Connor, Notari-Syverson, & Vadasy, 2005). Studies indicate that adults can assist children in acquiring essential, emergent literacy skills by providing a combination of high- and low-support techniques during an intervention activity (Notari-Syverson, O'Connor, & Vadasy, 2007; Ukrainetz, 2007). High-support techniques are used to assist children in mastering a skill

that they are unlikely to achieve independently (Notari-Syverson et al., 2007; Ukrainetz, 2007). High levels of support include such techniques as modeling the answer, eliciting the answer, and providing binary choices for possible answers (McGinty, Sofka, Sutton, & Justice, 2006). When modeling the answer, the adult demonstrates the correct responses to the child by engaging in self-talk or providing the child with a guide as to how to find the answer (McGinty et al., 2006). Eliciting the answer involves the adult drawing the child's attention to the desired target, using verbal cues (e.g., asking *wh-* questions) to directly request a response from the child (Notari-Syverson et al., 2007). A binary choice is a strategy in which the adult states information and offers the child two alternate utterances. By limiting the response options, binary choices help model specific possibilities to the child (Norris & Hoffman, 1990).

When the child demonstrates the ability to accomplish a skill with greater degrees of independence, the adult can begin to reduce the level of assistance provided by using techniques that afford lower levels of support. These include, for instance, providing explanation, relating to the child's experience, and using cloze procedures (McGinty et al., 2006). Providing explanation is a strategy in which the adult reinforces the answer to a specific question by drawing the child's attention back to the text for confirmation (McGinty et al., 2006). Relating to the child's experience involves tying new learning to the child's own experiences to assist him/her in connecting their background knowledge with the new concept (Notari-Syverson et al., 2007). The cloze procedure entails the adult pausing at appropriate junctures to indicate that the child should provide information (Norris & Hoffman, 1990).

Though many studies have reported that scaffolding is an effective instructional strategy

for developing children's emergent literacy skills during shared book reading, the majority of studies have focused on using scaffolding to teach code-related skills such as phonological awareness and print knowledge (McGee & Ukrainetz, 2009; McGinty et al., 2006; Skibbe et al., 2004). To date, only van Kleeck et al. (2006) has employed scaffolding strategies to improve preschool children's comprehension skills during shared book reading. They found that the scaffolding of literal and inferential questions during one-on-one shared book reading sessions was an effective means of improving preschool children's literal and inferential language skills. However, van Kleeck and colleagues (2006) did not describe the specific scaffolding techniques that were employed for the treatment group.

Multi-Tiered System of Support (MTSS)

The Multi-Tiered System of Support (MTSS), otherwise known as the Response to Intervention (RTI), is emerging in early childhood settings to improve children's literacy outcomes (Greenwood et al., 2011; National Professional Development Center on Inclusion, 2012). The MTSS or RTI (herein referred to as MTSS) is a framework for identifying children with emerging learning difficulties and providing subsequent, differentiated instruction according to those children's individual needs (Fuchs & Fuchs, 2006; Gersten et al., 2009). MTSS utilizes early detection and prevention strategies that identify struggling students and provide differentiated support before they fall behind (Gersten et al., 2009). MTSS employs universal screening to identify children needing additional support and then provides an appropriate level of intervention that aligns with each child's assessed instructional need. A hierarchy of interventions is available that typically includes three or four tiers. The idea is that

within Tier 1 (the bottom tier), all children receive a high-quality, research-based core curriculum. However, through universal screening, those children who are not making the expected amount and rate of progress will move to Tier 2 and receive more intensive instructional support. Children who continue to show insufficient progress despite Tier 2 support are then considered for more intensive interventions as part of Tier 3. The highest tier in the hierarchy provides the most individualized, intensive support and instruction (DEC, NAEYC, & NHSA, 2013; Peisner-Feinberg, Buysse, Benshoff, & Soukakou, 2011). Furthermore, MTSS is designed to be a dynamic and interactive process. The tier level is adjusted based on the child's progress: For example, if a child shows insufficient progress to meet a benchmark at a specific tier, he or she may be moved to a more intensive level of intervention. Similarly, a child who is making adequate progress toward the specific benchmark at a given tier may move to a less intensive tier (DEC et al., 2013; Greenwood et al., 2011).

The use of MTSS practices to support learning and development in children prior to kindergarten has become an increasingly common approach in the early education field (DEC et al., 2013; National Professional Development Center on Inclusion, 2012). In the early childhood context, MTSS aims to identify children with emerging difficulties, outfit them with the appropriate intensity of instruction, and provide an ongoing assessment process for evaluating teaching effectiveness and, when indicated, adjusting the intensity of the interventions (Greenwood et al., 2011; National Professional Development Center on Inclusion, 2012).

While researchers have developed many Tier 2 interventions for supporting young children's learning in preliteracy skills, most of the recent work in this area has focused on

improving prereading skills that lay a foundation for later decoding skills such as phonological awareness, alphabet principles, and phonics. There are comparably few interventions that use an MTSS framework to enhance young children's linguistic comprehension in order to support later reading comprehension (Zucker et al., 2010).

One such intervention comes from the Center for Response to Intervention in Early Childhood (CRTIEC), which developed a Tier 2 Story Friends intervention package (Goldstein, Spencer, & Sherman, 2012). This package provides children with explicit teaching within storybooks to improve their vocabulary and comprehension skills. The Story Friends intervention package includes a total of 18 books and matching, prerecorded, automated stories delivered through listening sessions. Each book has two embedded vocabulary lessons, one basic concept lesson, and three comprehension lessons (one question during the story and two questions immediately after the story). Each listening session is delivered in small groups with an adult facilitator. Three comprehension questions are included as intervention targets in each story. These questions include literal questions and inferential questions that ask children about the main character's emotions, their connections between story events and personal experiences, and their recall of story events and predictions for what might happen next. Once the story question is introduced, the story narrator provides an appropriate answer and a "think aloud" explanation for the answer (E. J. Spencer et al., 2013). For example: *At the end of the story, Marquez told his friends he was sorry. Why was he sorry? <pause>. Because he messed up his friends' games. His friends were playing nicely in the jungle. Marquez wasn't careful and ruined their fun. I would feel sorry if I did that, too.*

To examine the efficacy of the Tier 2 Story Friends intervention (Goldstein et al., 2012), E. J. Spencer and colleagues (2013) conducted a single case study with nine pre-kindergarten children who had limited language skills. The intervention employed a repeated acquisition design and was implemented across 11 weeks. The child participants listened to each story three times; mastery monitoring probes were used to measure the children's vocabulary and story comprehension skills before and after each storybook listening session. The comprehension questions were the same as those in the prerecorded stories. The authors reported modest improvements in the children's vocabulary, but the intervention appeared to have little effect on the children's ability to answer the inferential questions on the weekly mastery monitoring probes. The researchers noted that the automated intervention did not allow for many practice opportunities, which limited the participants' learning potential.

Greenwood et al. (in press) replicated E. J. Spencer and colleagues' (2013) study with a new sample. The same Tier 2 Story Friends (Goldstein et al., 2012) automated vocabulary and comprehension intervention, as described above, was implemented over 11 weeks with nine participants, including four English Language learners and three children who received services through Individualized Education Programs (IEPs). This study also used a repeated acquisition design. In general, the results of this study were similar to the one reported by E. J. Spencer and colleagues (2013). The intervention had a medium effect size on children's vocabulary gain, but a weak effect size for changes in participants' ability to answer story questions. The authors indicated that the automated intervention may have included too few response trials focused on comprehension. Furthermore, they noted that contingent feedback, in which children are given

specific instruction and modeling related to their responses, may be required for enhancing children's comprehension. However, providing contingent feedback was not available in the automated story format, as all the feedback was standardized through pre-recorded material.

Kelley, Goldstein, Spencer, and Sherman (2015) extended the previous studies with revised Story Friends intervention program materials, intervention procedures, and assessments. In the revised program, the researchers replaced 18 of the 27 pre-story questions with embedded inferential questions. Furthermore, they included a new comprehension measurement, the *Assessment of Story Comprehension* (ASC; T. D. Spencer & Goldstein, 2011), in order to assess participants' comprehension outcomes. The study design was a randomized group-design study with an embedded repeated acquisition design. The intervention was implemented over 14 weeks, with nine participants in the treatment group and another nine participants in the comparison group. All participants were reported to have limited oral language skills, but no participants received services through IEP programs.

Generally, the results of this study were similar to those reported by E. J. Spencer et al. (2013) and Greenwood et al. (in press). First, the intervention had a large effect size on children's vocabulary gain. Second, the ASC results indicated that the intervention improved the participants' question-answering skills on inferential questions, but not on literal questions. It is important to note that, despite those observed gains, the participants in the treatment group did not reach mastery levels for inferential questions. Thus, the authors suggested that there is a need to teach both literal and inferential questions about the story. Moreover, the researchers mentioned that participants received a fairly low dose of comprehension instruction due to the

lack of contingent feedback and amount of necessary responding—a byproduct of the teaching procedures being embedded and prerecorded in the automated intervention. Therefore, they highlighted a need to increase the number of response opportunities.

Developing Talkers (Children’s Learning Institute, 2011) is another curriculum supplement designed to improve preschoolers’ language skills (i.e., vocabulary and story comprehension) within an MTSS framework. During large-group Tier 1 shared reading in Developing Talkers, teachers use brief vocabulary explanations to build all students’ vocabulary and comprehension skills. Children who do not respond adequately to Tier 1 instruction, based on progress-monitoring data, receive a small-group Tier 2 instruction. The Tier 2 lessons include a brief review of the book and guided questions on the day after the reading; the guiding questions are two inferential questions related to the book. The teacher then follows instructions on the lesson plan and provides children with the necessary scaffolding to facilitate learning. The format of the scaffolding strategy is consistent across all lessons. When the child is unable to answer the question, the teacher asks the child an either/or question to elicit a correct response (e.g., “Are you excited when you play in the park or when you fall down?”). If the child is unable to give a correct response, the teacher provides a cloze prompt (e.g., “When you play in the park, you might feel ex___*excited*”). If the child is not able to respond to the cloze question, the teacher gives the answer and asks the child to repeat it back (“When you play in the park, you might feel excited. So, how do you feel when you play in the park? Say, ‘I feel excited.’”).

In order to assess the effectiveness of Developing Talkers, Zucker, Solari, Landry, and Swank (2013) conducted an experimental study with children in 39 preschool classrooms using a

pre-/posttest design. The teacher in the control group classrooms read books as they normally would during large-group book-reading sessions. Meanwhile, children in the experimental condition participated in Developing Talkers' daily large-group book-reading activities (Tier 1). Students who did not respond adequately to Tier 1 instructions received the Developing Talkers' small-group book review and extended vocabulary instructions (Tier 2). Although children receiving the Developing Talkers' Tier 1 and Tier 2 interventions demonstrated significant gains on receptive vocabulary, they failed to demonstrate gains in comprehension skills. The authors thus claimed that a more explicit and extended focus on instructional strategies might be needed in order to promote greater growth in children's comprehension skills.

The above studies (Greenwood et al. (in press); Kelley et al., 2015; E. J. Spencer et al., 2013; Zucker et al., 2013) share a common theme: namely, that the interventions produced weak effects on children's comprehension skills. The major shortcomings of those interventions are the lack of explicit and extended instructional strategies, the absence of contingent feedback for scaffolding children's comprehension skills, and inadequate practice opportunities. This finding led to the development of this explicit storybook comprehension instruction.

Conceptual Framework of this Study

Given that comprehension skills are a key component of successful reading, effective teaching strategies are needed to promote young children's comprehension skills. The current study explored the effects of explicit instructional strategies embedded within shared book reading as a supplemental intervention for promoting narrative comprehension skills among preschool children who showed inadequate performance on progress-monitoring measures. This

intervention incorporated the following: (a) story grammar elements to help children learn the internal story structure; (b) questions and comments to help teach inferential thinking; (c) scaffolding strategies to provide contingent feedback and varying levels of support to children responding to the story questions; and (d) multiple response opportunities to practice. The important feature of this intervention was that it provided explicit scaffolding strategies that led to growth in children's story comprehension. Figure 1 depicts the study's key constructs within a conceptual framework.

In this study, the researcher asked scripted questions embedded in the text of storybooks. This involved both literal and inferential questions that were structured around story grammar elements. The researcher provided explicit instruction (i.e., scaffolding strategies and multiple learning opportunities) embedded into shared book reading to support children in answering comprehension questions. The teaching instructions included a combination of high- and low-support scaffolding strategies to give contingent feedback and thereby support children's correct responses to the story questions. Children received a high level of support when they were unable to independently answer the story question correctly, and a low level of support when they were able to answer story questions with a partially correct answer. Children were given multiple opportunities to receive scaffolding instructional support and contingent feedback throughout the shared book reading. The feedback was scripted and delivered to sound like a natural shared reading discussion. The researcher hypothesized that this explicit storybook comprehension instruction would improve story comprehension skills for those children who

were not making adequate progress in story comprehension in response to Tier 1 instruction. In exploring this hypothesis, the study addressed the following research questions.

Research Questions

1. Did children demonstrate greater comprehension gains on pre-post mastery monitoring measures in response to a comprehension intervention embedded into storybooks compared to their gains prior to implementation of the intervention (Baseline)?
2. Did children demonstrate greater gains in comprehension skills in response to the explicit storybook comprehension instruction, as measured by their pre- and post-implementation scores on the Assessment of Story Comprehension and the Preschool Early Literacy Indicator?

CHAPTER 3: METHOD

Participants

Participants for this study were recruited from a Head Start program in Midwestern city. Upon receiving approval from the program director and the University of Kansas' Institutional Review Board, the researcher asked the administrators of the Head Start program to forward an email inviting interested teacher participants among the preschool classrooms' lead teachers; the message described the purpose, procedures, and benefits of the study. Two teachers expressed an interest in participating in the study and were given a consent form (Appendix A). Once the teachers consented, the researcher began the process of recruiting the child participants by distributing parent consent forms (Appendix B) and student demographic information questionnaires (Appendix C) to the parents of children in the respective classrooms.

Because the current intervention was designed to serve as a Tier 2 intervention within the context of an MTSS model of service to lower performing children, a class-wide, multi-step screening process was conducted in order to identify children with weak comprehension skills who were likely to benefit from a Tier 2 intervention. The screening consisted of two parts: (a) a vocabulary screener, which was used to filter out children who had very limited oral language skills and might not be able to understand the language of instruction; (b) a comprehension screener, which were used to identify children at risk for comprehension delay.

Step one. All children were screened using *myIGDIs Early Literacy*⁺ – *Picture Naming* (PN-myIGDIs; McConnell, Bradfield, Wackerle-Hollman, & Rodriguez, 2013). Children who received a raw score above 3 (out of a total possible 15) moved on to step two. Children who

scored a 3 or below were not considered good candidates for the intervention because they had very limited oral language skills. This benchmark score of 3 on the my-IGDI Picture Naming was used successfully by E. J. Spencer and colleagues (2013) to identify children for the Tier 2 oral language intervention.

Step two. Children who scored above 3 in step one then completed the comprehension section of the *Preschool Early Literacy Indicators – Pre-K 4/5 Benchmark Form* (PELI; Aguayo, Abbott, & Kaminski, 2014). Children who scored below 11 on this measure (out of a possible 23) were considered good candidates for a Tier 2 early literacy intervention and eligible for the story comprehension intervention study. The researcher adjusted the benchmark score from 13 (the PELI’s established comprehension subtest benchmark goal for 4- to 5-year-olds) to 11 because a previous pilot study showed that children who scored 13 on the pretest had a very high baseline with limited room for growth in the intervention.

Eight participants passed through the screening, but only seven participants were included in the study. One child was excluded due to inconsistent attendance and multiple refusals to respond to the story questions during the intervention. The remaining seven children, four girls and three boys, had a mean age of 57 months (range = 53 to 62 months). All the children spoke English as a first language. None of the participants had an identified disability. However, one child received speech and language services through an Individual Education Program (IEP). Demographic information and child characteristics are displayed in Table 1. Participants’ screening measure scores and initial language skill scores are presented in Table 2.

Setting

This study was conducted at the Head Start Program. The program encompasses 3- to 5-year-old children whose family income falls below federal poverty guidelines. The preschool's classrooms operated as a half-day program and met five days a week. Each classroom had approximately 15 children, overseen by one lead teacher and one assistant teacher. Classroom teachers provided Tier 1 early literacy instruction in the classroom. The story comprehension intervention sessions took place outside the classroom in the school library. Participants were asked to participate in the intervention session with the researcher during their normal class center time. The intervention was delivered in a one-on-one format.

Story Comprehension Intervention

The intervention was designed to help preschool children learn story comprehension skills and thus incorporated the following features: (a) structured story questions on story grammar elements to help children gain an understanding about narrative structure and the causal sequencing of events in stories; (b) questions and comments offered during book reading to teach inferential thinking; (c) scaffolding strategies that provided children with contingent feedback and the varying levels of support needed to answer the story questions; and (d) multiple opportunities for practice.

The Story Friends book series, developed by the Center for Response to Intervention in Early Childhood (CRTIEC) research team at the Ohio State University, was used for the intervention. The books featured colorful illustrations that matched the storyline. Each book contained a theme likely to be familiar to preschool children (e.g., first day of school, a doctor's

visit) and was structured to include common story grammar elements. The CRTIEC team designed all the books to possess a consistent difficulty level in terms of vocabulary and story complexity. Sixteen out of the eighteen books from the Story Friends book series were used in this study.

For each book, the researcher developed a set of six scripted questions. All six questions were related to story characteristics and story grammar elements with the intent of deepening children's understanding of the story. The following are examples of how the elements of story grammar (i.e., setting, character, problem, solution, and ending) were incorporated into instruction embedded within the stories to support children's story comprehension.

1. Ask children to think about when/where the story is taking place (e.g., "Where was Pablo going?")
2. Ask children about the nature of the problem (e.g., "Why were the other animals scared?")
3. Ask children about how the main character thinks and feels (e.g., "How do you think Pablo feels?")
4. Ask children about what the main character does to attempt to solve the problem (e.g., "What did Pablo say about his quills?")
5. Ask children to think about what happen when the problem has been solved (e.g., "Why did Suki ask Pablo to play?")
6. Ask children to describe the ending (e.g., "What happened at the end of the story?")

Out of the six questions, three questions were advanced literal questions which required the child to focus on specific aspects of the story in order to describe or to recall information. The other three questions were inferential questions, which required the child to draw inferences by integrating information that was not directly presented in the story. These questions asked children to infer a character's feeling, explain a character's feeling, and explain a character's motivation. Literal questions were interspersed among inferential questions to increase children's engagement during the story reading. The factual questions were intended to motivate children to answer the questions and reduce their frustration during reading sessions. The two types of questions (three of each) were consistent across all sixteen scripts. The questions were typed up and pasted directly into the story text and post-it flags were used to mark the specific points where the questions should be asked. The researcher and the children shared the same copy of each storybook. Story questions for all sixteen scripts are included in Appendix D.

The researcher asked scripted questions and gave contingent feedback to the child depending on his or her response. The script included the desired responses in order to assist the researcher in deciding whether to provide the child with additional prompts (a sample script for a storybook is included in Appendix E). Comments given by the researcher were intended to help children learn inferential thinking by drawing on their existing knowledge as well as their problem-solving and reasoning skills. The contingent feedback that each child received was scripted, but uttered in a natural way by the researcher. The following are examples of different types of feedback depending on the child's response:

1. If the child was able to answer the question adequately, the researcher provided a natural confirmation (e.g., “Yes, Pablo is going to school”).
2. If the child did not respond adequately or did not respond at all, the researcher provided scripted prompts and cues (i.e., start with prompts with high-level support scaffolding if assistance was needed to answer the question).
3. If the child still did not respond adequately, the researcher modeled the appropriate response(s) and asked the child to repeat the response(s).

The selected children participated in one-on-one, 15-minute book-reading sessions with the researcher in the school library, once per day, four days per week. In typical practice, a Tier 2 intervention would occur in a small group. However, the one-on-one approach was chosen in order to demonstrate whether the explicit instructional strategies produced the intended effects on the individual children’s comprehension.

During the reading session for baseline and intervention phase, the researcher read a pre-determined storybook once to the child. Each storybook was read twice across two consecutive days. Prior to each reading session, the researcher invited the child to read with her. After the child was seated, the researcher welcomed the child and reviewed the reading session rules with him/her: “(1) Listening ears on, (2) Eyes on the book, and (3) Answer the questions.”

Measurement

The study used several measures to document children’s characteristics, initial vocabulary and comprehension skill levels, and intervention outcomes.

Children’s demographic information. The parents of participating children received a child demographic questionnaire, which asked for information regarding the child’s demographic characteristics (e.g., date of birth, gender, and ethnicity) and any identified educational needs (e.g., Dual Language Learner, Individualized Education Plan, developmental delays or special needs, etc.).

Child screening measures. *Picture Naming myIGDIs*⁺ (McConnell et al., 2013) and *Preschool Early Literacy Indicators Comprehension subtest* (Aguayo, Abbott, & Kaminski, 2014) were used to identify children who would be appropriate candidates for the supplemental intervention.

***Picture Naming myIGDIs Early Literacy*⁺.** The Picture Naming myIGDIs is an assessment tool developed for screening and progress monitoring children’s early literacy and oral language development. The Picture Naming myIGDIs is a 15-item, individual-administered measure in which the child is shown pictures of 15 items commonly found in preschoolers’ natural environments (e.g., book, train, bucket), one item per flashcard, and asked to name the pictures as quickly as possible. The correct response is printed on the back of each card. It is untimed and the final score is the number of pictures named correctly by the child. Picture Naming myIGDIs has a reported test-retest reliability score between .93 to .97 and a criterion validity correlation coefficient of .66 with the *Peabody Picture Vocabulary Test – Fourth Edition* (PPVT-IV; Dunn & Dunn, 2007) (McConnell et al., 2013).

Preschool Early Literacy Indicators (PELI) Comprehension Subtest. The PELI is designed to screen and monitor the progress of preschoolers’ acquisition of early literacy and

language skills. The PELI comprehension subtest assesses a child's ability to answer comprehension questions related to a simple story, as well as to make predictions and inferences. The testing session involves the assessor reading a short story, pausing throughout the story to ask questions, and concluding with a set of comprehension questions (a total of nine questions). These questions are both literal (e.g., who is the story about?) and inferential (e.g., predicting a character's actions based on information presented in the story). The child receives a score of 2 for each correct response and 1 for each partially correct response. A cloze task about the story is administered afterward, with the child receiving 1 point for each correct word. The measure is untimed, with scores ranging from 0 to 23. The PELI comprehension subtest has criterion validity correlation coefficients ranging from .45 to .54 with the Core Language Structure subtests of the *Clinical Evaluation of Language Fundamentals* (CELF-P2; Wiig, Secord, & Semel, 2004) (Kaminski, Abbott, Aguayo, Latimer, & Good, 2014). The PELI's Accuracy Classification relative to the CELF-P2 Core Language Structure is .65 (Kaminski et al., 2014).

In this study, the PELI comprehension subtest was additionally employed as a progress-monitoring tool. All children received four PELI comprehension subtests: one prior to the intervention, another after they read nine storybooks, and another every time they finished reading three more books (for a total of three).

PELI comprehension subtest scoring agreement. The researcher scored all the PELI comprehension subtest assessments in accordance with the scoring guidelines. Scoring reliability was completed as soon as the PELI comprehension subtest was administered. For each PELI comprehension subtest, a trained secondary scorer independently scored three

randomly selected participants. Scoring reliability was calculated by dividing the number of disagreements by the number of agreements plus disagreements and multiplying by 100. The scoring reliability ranged from 86% to 100% with an average of 94%.

Overall oral language skill measures. To assess children's overall oral language skills, two standardized assessments were administered, one at the beginning of the study. These assessments were the *Peabody Picture Vocabulary Test – Fourth Edition* (PPVT-IV; Dunn & Dunn, 2007), and the *Comprehensive Evaluation of Language Fundamentals – Second Edition* (CELF-P2; Wiig, Secord, & Semel, 2004).

Peabody Picture Vocabulary Test (PPVT-IV). The PPVT-IV is a norm-referenced measure for assessing a person's receptive vocabulary within Standard American English. The test administration involves the examiner presenting a series of pictures (four pictures per page) to the participant and asking the individual to point to the picture that represents the word described by the examiner. The score reliability of PPVT-IV, reported in terms of coefficient alpha (α), ranges from .96 to .97, while the split-half reliability averages fall between .94 and .95. The test-retest reliability score ranged from .92 to .96. The validity of inferences made from the interpretation of scores is reported to range from .41 to .84 (Dunn & Dunn, 2007). The PPVT-IV has a mean of 100 and a standard deviation of 15.

The Clinical Evaluation of Language Fundamentals (CELF-P2). The CELF-P2 is a brief, norm-referenced battery for assessing receptive and expressive language skills in children aged 3-6 years. The present study selected three subscales from the measure (i.e., Sentence Structure, Word Structure, and Expressive Vocabulary), which provide a Core Language Score.

The score reliability of CELF-P2, reported in terms of coefficient alpha (α), ranges from .77 to .95, while the split-half reliability average falls between .80 and .97. The test-retest reliability score ranges from .91 to .94. The validity of inferences made from the interpretation of scores is reported to range from .57 to .84 (Wiig, Secord, & Semel, 2004). The CELF-P2 has a mean of 100 and a standard deviation of 15.

Progress monitoring measures. Mastery monitoring probes, the Assessment of Story Comprehension (ASC; T. D. Spencer & Goldstein, 2011), and Preschool Early Literacy Indicators (PELI-COM; Aguayo, Abbott, & Kaminski, 2014) were used to monitor children's story comprehension progress.

Mastery Monitoring Probes. The primary dependent variable in this study was each child's response to the scripted comprehension questions embedded in each shared reading session. Each reading session was video-recorded and the child's responses to the questions were also handwritten on the script by the researcher. The researcher scored the child's responses to the questions after the reading session. The scoring guide, which included the scoring criteria and desired response(s) for each question, was incorporated into the script (a sample script and scoring guide can be found in Appendix E). The highest score for each script was 22 points, with the scoring system working as follows:

- Literal question that asks the child to describe the basic setting of the story or character's primary action in the story, identify the main character's attempt to solve the problem, or recall the resolution of the story is scored from 0 to 2 points. A child receives a score of

- 2 for giving a correct response without prompting;
 - 1 for giving a correct but incomplete, unclear response, or ambiguous response;
 - 0 for giving an incomplete or unclear answer.
- Inferential question that asks the child to identify the character’s feeling is scored from 0 to 4 points. A child receives a score of
 - 4 for giving a correct emotion word specifically conveying the character’s feeling;
 - 2 for giving a response that somewhat conveys the character’s feeling, but does not specifically identify the character’s feeling;
 - 0 for giving a response that is not related to the character’s feeling.
 - Inferential question that asks the child to explain the character’s feeling or motivation is scored from 0 to 6 points. A child receives a score of
 - 6 for giving a correct and clear response that incorporates story and background knowledge to make an inference about the character’s feeling or motivation;
 - 3 for giving a response that refers to information from the story only or gives an overly simplistic explanation;
 - 0 for giving a response that does not explain the character’s feeling or motivation.

Mastery monitoring probes scoring reliability. As stated before, all reading sessions were video recorded. The researcher served as the primary scorer for the mastery monitoring probes. In order to provide mastery monitoring scoring reliability, 30% of the 224 video recordings from both baseline and intervention phase were randomly selected and scored independently by a trained second scorer. The mastery monitoring probes scoring reliability was

calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. The mastery monitoring probes scoring reliability was 86% (range 82-93%).

Master monitoring probes implementation fidelity. In order to directly observe and assess how accurately and frequently each step of the intervention was implemented, it was necessary to collect fidelity of implementation data. Thirty percent of the shared reading session recordings were randomly selected to evaluate the degree to which the researcher implemented all critical components of the story comprehension intervention. A second trained observer watched the videos and completed the fidelity of implementation checklist (Appendix F). The fidelity of implementation was calculated by dividing the number of applicable steps implemented correctly per intervention session by the total number of applicable steps of implementation. This number was then multiplied by 100 and expressed as a percentage across the study. The mean administration fidelity was 98% (range = 94-100%).

Assessment of Story Comprehension (ASC). The Assessment of Story Comprehension (ASC; T. D. Spencer & Goldstein, 2011) is designed to measure children's story comprehension skills. In this study, the ASC was used to monitor children's progress in comprehension, as well as help determine whether the participants were able to generalize their newly acquired comprehension skills to new stories. During the administration of the ASC, the researcher read a brief story aloud to the child and asked three types of questions about the story: literal questions, inferential questions, and one question related to vocabulary. There are nine ASC stories, with a standard length, story grammar, and language complexity, which contribute to their equivalent

form reliability. All of the stories consist of story themes that are understandable to most preschoolers (e.g., sharing toys with friends, crashing on a bike). The administration of one ASC takes approximately five minutes.

Scoring procedures for the ASC are standardized: Each ASC story comes with individual scoring guides, but the scoring criteria remain consistent across all nine stories. Scores on the ASC range from 0-17. Preliminary investigations by T. D. Spencer and colleagues (2015) indicate that the ASC is highly correlated with CELF-P ($r = .81$), and has adequate parallel form reliability (.65-.83) and high internal consistency (Cronbach's alpha = .96). In this study, the ASC was administered to the children at the beginning of the study during the baseline phase and throughout the intervention phase—specifically, after the participants read three storybooks, for a total of six administered ASC tests.

ASC scoring agreement. The researcher scored all ASC assessments in accordance with the scoring guidelines. Scoring reliability was completed as soon as the ASC was administered. For each ASC story, a trained secondary scorer independently scored three randomly selected participants. Scoring reliability was calculated by dividing the number of disagreements by the number of agreements plus disagreements and multiplying by 100. The ASC scoring reliability ranged from 88% to 100%, with an average of 94%.

Design and Procedure

This study combined a repeated acquisition (RAD; Boren & Devine, 1968) and multiple baseline design (MBD; Baer, Wolf, & Risley, 1968) in order to examine the effect of the story comprehension intervention on children's comprehension skills. By merging these two single-

case design strategies, the researcher was able to exercise experimental control in multiple ways and therefore provide stronger demonstrations of functional relations between treatment conditions and their impact on comprehension measures (Kennedy, 2005).

A RAD was used to demonstrate individual children's acquisition of comprehension skills over each storybook. This design allows for the repeated demonstration of learning new sets of equivalent target behaviors, making it possible to assess whether the intervention is responsible for skill acquisition. Each participant's acquisition of story comprehension skills was measured by recording his/her correct responses during the first (pretest) and second reading (posttest) of each storybook. The MBD-across-participants design was used to demonstrate that the onset of the explicit storybook comprehension instruction was associated with the hypothesized improvements in the children's responses to the scripted questions, compared to baseline. Thus, the independent variable was manipulated in the design as AB where: A = Baseline and B = Intervention. Children were randomly assigned to either receive the intervention first ($n = 3$), or wait longer in baseline to receive it at a later date ($n = 4$). To shorten the time children were waiting to receive the treatment, children were divided into three groups of two each, with one group of three to accommodate the seventh child. This provided three opportunities in the MBL to demonstrate and replicate treatment effects.

Baseline phase (A). During the baseline phase, the researchers read a single story with the child once per day and repeated the reading on the next day. A new storybook was started afterward, and the process repeated until all sixteen books were read. In the baseline phase, the

researcher asked scripted questions without providing explicit storybook comprehension instruction. An intervention and assessment schedule is provided in Appendix G.

Intervention phase (B). Three participants entered the intervention phase on the fourth book and four participants entered the intervention phase on the seventh book. When participants entered the intervention phase, the researcher asked scripted questions as well as provided explicit storybook comprehension instruction to children during reading sessions.

Data Analysis

Visual analysis was used to inspect the graphs for differences in level, trend, variability, immediacy of effect, and overlap of the data between treatment conditions (Horner et al., 2005). The Standard Mean Difference (SMD; Busk & Serlin, 1992), an effect size computation for single case designs, was used to supplement the visual analyses. The calculation of single case effect sizes remains an area of discussion and development, and universal agreement on the best approach has yet to be achieved (Horner, Swaminathan, Sugai, & Smolkowski, 2012). In this context, the SMD was selected because it provides an arguably similar estimate to Cohen's d in the context of a single case design. However, its use is invalid in cases where the standard deviation of the time series in each phase cannot be estimated (i.e., only one baseline data point). The use of SMD was intended to corroborate the visual inspection of differences in mean level between phases and non-overlapping data points: $SMD = M_B - M_A / SD_A$

CHAPTER 4: RESULTS

Research Question 1. Did children demonstrate greater comprehension gains on pre-post mastery monitoring measures in response to a comprehension intervention embedded into storybooks compared to their gains prior to implementation of the intervention (Baseline)?

Overall, the children made substantial gains in comprehension points in the intervention compared to the baseline phase (see Table 3 and Figures 2 to 4). Across all children and storybooks, the mean gain was less than one point (0.85) during baseline, compared to 5.92 during the intervention—nearly a seven-fold increase. During the baseline phase, children’s performance typically entailed a small gain, no gain, or occasionally a loss. During treatment, children demonstrated consistent, positive growth; no child failed to gain and there was no loss. The mean gain ranged from 4.00 (Child G) to 6.46 (Child F) (see Table 2). Because of the combined research design, individual children’s improvement was demonstrated repeatedly by large gains in comprehension points per storybook (RAD) and by changes only occurring at and not before the onset of the intervention across children (MBD), which was replicated 3 times (see Figures 2 to 4).

Individually, Child A and E gained only one point on average during baseline, compared to six or more points during the intervention phase (see Figure 2). Similar patterns were observed in Child F and Child B (see Figure 3), as well as Child C, D, and G (see Figure 4). During the intervention phase, there were only five instances (one each for Child F, B, C, D, and G) where no point gain occurred, and in most instances, the pretest score was already high. Interestingly, all but Child E showed some upward trend in their pretest comprehension

performance, compared to the baseline pretests, during the intervention phase—perhaps suggesting some generalization of the intervention effects from earlier to later storybooks.

The effect size comparisons of children's point-earning improvements were also much higher during the intervention phase compared to the baseline phase (See Table 3), thereby corroborating the visual analysis of the graphed data. During baseline, the mean effect size (SMD) was 0.37 ($SD = 0.36$), ranging from -0.17 (Child C) to 0.81 (Child D); during intervention, it rose to 1.44 ($SD = 0.33$), ranging from 0.95 (Child G) to 1.82 (Child E).

Research Question 2. Did children demonstrate greater gains in comprehension skills in response to the explicit storybook comprehension instruction, as measured by their pre- and post-implementation scores on the Assessment of Story Comprehension and the Preschool Early Literacy Indicator Comprehension Subset?

All children showed improvement on the ASC and PELI comprehension subtest as a result of the intervention. The mean gain on the ASC was 6.68, with a range of 3.5 (Child A) to 8.75 (Child F) across children (see Table 4 and Figure 5 to 7). The mean ASC score for all children in baseline was 6.61 ($SD = 2.03$), ranging from 4.50 (Child F) to 10.50 (Child A). During the intervention phase, the mean ASC score rose to 13.29 ($SD = 1.30$), ranging from 11.67 (Child D) to 14.00 (Child A). The mean effect size of the ASC for all seven children was $SMD = 7.70$ ($SD = 4.67$), ranging from 2.12 (Child D) to 14.43 (Child G; see Table 4), which indicated changes in mean level and no overlapping data points between phases. Because of the multiple baseline design, it is apparent that the improvements over baseline only occurred after

the onset of treatment (see Figures 5, 6, and 7); thus, the improvements in ASC scores can be attributed to the intervention.

The mean gain on the PELI comprehension subtest was 9.42, with a range of 7.33 (Child B) to 11.33 (Child D and F) across children (see Table 4 and Figures 8 to 10). During baseline, the mean PELI comprehension subtest score for all children was 9.29 ($SD = 1.60$), ranging from 7.00 (Child D and F) to 11.00 (Child A). During the intervention phase, the overall mean increased to 18.71 ($SD = 1.31$), ranging from 17.33 (Child B) to 20.00 (Child A and G). Because the baseline only featured one testing occasion, it was not possible to compute an SMD effect size for this measure. However, visual inspection confirmed that there was no overlap in scores between the baseline and treatment phases, indicating that all children increased in their level of performance.

CHAPTER 5: DISCUSSION

The purpose of this study was to design an intervention that could be used as a Tier 2 intervention within an MTSS model. The study specifically examined whether preschoolers' comprehension skills could be improved through a set of intervention strategies that focused on asking questions based on story grammar elements, using scaffolding strategies to give contingent feedback, and providing multiple learning opportunities. A goal of this research was to see if preschool children's narrative comprehension skills would grow in response to this type of intervention—an outcome that has not yet been demonstrated in the empirical literature.

Seven preschool children participated in this study. These children were identified as not showing adequate comprehension growth in response to the Tier 1 instruction they were receiving as part of their ongoing prekindergarten experience. This study hypothesized that these seven preschool children would improve their narrative comprehension after receiving an explicit storybook comprehension instruction that provided them with scaffolding instructional support and multiple learning opportunities. The results confirmed this hypothesis. After participating in a daily intervention across eight weeks, all seven children showed gains in both literal and inferential comprehension regardless of their baseline ability.

During the baseline phase, all children showed small pre-post gains, and occasionally no gains or losses, in answering the mastery monitoring story questions. The mean pre-post gain on the mastery monitoring measure across children during baseline was less than one point (0.85) and the highest mean posttest score was less than 12 points out of a total possible 22 points on the measure. These scores indicate that the children had limited ability to answer questions

about the story prior to the implementation of the intervention. Because the children did not receive any type of contingent feedback or learning opportunities during the baseline phase, the decrease in comprehension scores may be the result of the children guessing at the correct answer without much real certainty. Overall, the gain scores for each book were very small during this phase, indicating that children did not gain story comprehension skills in the absence of intervention supports.

Following the implementation of the intervention, almost all children showed immediate gains in their story comprehension (i.e., Child A, E, B, C, and G); their comprehension scores on the mastery monitoring measure increased by six or more points after receiving the intervention. Even if the effect was not immediate, all children showed increasing gains in their comprehension scores across storybooks. These results confirm that all children responded to the intervention, including the child with IEP (Child G), who performed as well as the other participating children. With the exception of Child B, most of the children showed an increasing trend on their posttest scores during the intervention phase. Interestingly, the pretest scores also showed an increasing trend during the intervention phase. Considering that the storybooks were all written in the same language and at the same vocabulary level, the increasing trend in the pretests could be explained by the children learning to apply their newly learned comprehension skills to novel storybooks.

In order to monitor the children's progress in story comprehension ability, two other measures, the ASC and the PELI comprehension subtest, were employed, though they were not directly linked to the story content. The ASC consists of a total of eight questions: three factual

questions and five inferential questions. The factual questions asked the children to: (a) describe the basic setting of the story or a character's primary action in the story; (b) identify the main character's attempt to solve the problem; and (c) identify the resolution of the story. The inferential questions asked children to: (a) make a prediction about the outcome of the story based on the title; (b) explain the cause of the character's emotion; (c) explain the character's motivation; (d) predict subsequent events; and (e) infer the meaning of a target word from the story. Apart from three questions (i.e., predicting based on the title; predicting subsequent events; defining a vocabulary word), the explicit storybook comprehension instruction aligned with the remaining five story questions on the ASC. With the exception of Child A, all the children scored below 50% on the ASC during the baseline phase, but all of them also showed a substantial increase in their scores after starting the intervention (see Figure 5 to 7). Furthermore, six of the children (again excluding Child A) demonstrated an increasing trend in their ASC scores throughout the intervention phase. It may be that Child A had higher comprehension skills at the beginning of the study compared to the other participants: Her score (11 points) on the PELI comprehension screening measure was the highest among all children (with an average of 9 points); therefore, Child A had less room to demonstrate growth.

The PELI comprehension subtest was another progress monitoring tool used in this study. The PELI comprehension subtest features a total of fourteen questions: four literal questions, five inferential questions, and five cloze questions. The literal questions asked children to: (a) identify the story's main character; (b) indicate the time in the context of the story (morning/night; summer/winter); and (c) recall a story event. Meanwhile, the inferential

questions asked children to: (a) make a prediction about the book based on its cover; (b) identify the main character's feeling; (c) predict subsequent events; and (d) explain the character's motivation. The five cloze questions asked children to recall details of the story. The current shared book intervention aligned with the PELI comprehension subtest insofar as it included questions about the main character's feeling and motivation. The rest of the PELI comprehension subtest questions, such as making predictions or the cloze questions, were not a focus of the scripted storybook intervention.

All children showed a similarly substantial improvement on their PELI comprehension subtest scores, with the mean score effectively doubling from the baseline phase to the intervention phase. At the beginning of the intervention, all children scored below the mid-year benchmark goals and cut points for risk (15 points) (Kaminski et al., 2014). The average PELI comprehension subtest score across participants during baseline was less than 10 points, which indicated that the children were at risk in terms of their comprehension skills and might benefit from additional instructional support beyond Tier 1. After the implementation of the eight-week intervention, all the children's PELI comprehension scores reached above the benchmark goals and cut points for risk (17 points): The average PELI comprehension score during the intervention phase was 18.71 points. As a result of the intervention, these children would be considered no longer in need of Tier 2 supplemental instructional support for comprehension.

Although all children experienced an increase in overall mean scores on both the ASC and PELI comprehension subtest, most of them still encountered difficulty when answering some types of questions that were not a focus of the intervention. For example, questions that required

children to make predictions based on the story title posed a challenge. Children also had difficulty answering basic questions such as, “Who was the story about?” Ironically, they were able to answer questions that might be considered more challenging, such as inferential questions about a character’s feelings and motivation. It may be that children struggled with those question types for which they did not receive instruction and practice opportunities during the intervention.

One observation made during the intervention phase was that children showed more gains in story comprehension when they were interested and engaged in the story. In general, the children were more focused on stories in which the storyline had a twist or some novel element. Children seemed to lose interest and be less attentive to the story when they were familiar with the topic or if the topic was more mundane, such as going to school, going to the dentist, going to the doctor, etc. Accordingly, there were fewer gains on books oriented around those topics. It may be that children’s reduced interest in the books caused them to pay less attention to the contingent feedback provided by the interventionist. As such, the children may not have known how to answer the questions on the posttest.

Overall, the results of this study substantiate the conceptual framework guiding this supplemental Tier 2 intervention. The theory of change underlying this intervention presumed that children who were not responding to Tier 1 instruction could improve their story comprehension via instruction that combined high- and low-level scaffolding supports, thereby assisting them in answering literal and inferential questions based on story grammar elements.

Moreover, students had multiple opportunities to receive comprehension instruction and contingent feedback throughout the shared book reading.

Prior research has found that guiding children with questions about story grammar elements during shared book reading helps them to understand the causal structure of a text and improve their comprehension skills (Hayward & Schneider, 2000; Morrow, 1984; Stein & Glenn, 1979; van Kleeck, 2008). However, the majority of these studies have focused on kindergarten and early elementary school children. No studies to date have examined how story grammar elements can be embedded in reading activities to improve preschool children's story comprehension. This current study showed that adults can adapt such a strategy to preschoolers in a developmentally appropriate way by asking questions based on story grammar elements during shared book reading, thereby promoting those students' story comprehension skills.

Earlier scholars also found that scaffolding is an effective instructional strategy for improving children's emergent literacy skills during shared book reading (McGee & Ukrainetz, 2009; McGinty et al., 2006; Skibbe et al., 2004). However, most of these studies have used scaffolding strategies to teach phonological awareness and print knowledge. To date, only one study (van Kleeck et al., 2006) has successfully employed scaffolding strategies during shared book reading to enhance preschool children's comprehension skills. However, these researchers did not specify the type or level of scaffolding strategies used in their study. Furthermore, they did not measure children's narrative comprehension skills, but rather their ability to make inferences about a picture. This current study extended the previous research approach by assessing children's narrative comprehension skills within a story context. Specifically, the

intervention used in this study supported children's correct responses to the story questions during shared book activities by using a combination of high-level and low-level scaffolding strategies. The results of the current study suggest that providing various levels of scaffolding strategies during shared book reading can have a positive effect on children's narrative comprehension.

Previous studies have revealed that the CRTIEC Story Friends intervention package and the Developing Talkers Tier 2 interventions result in only limited gains in children's comprehension and have thus speculated that the interventions' weak effect on comprehension might be due to a lack of contingent feedback and practice opportunities (Greenwood et al., in press; Kelley et al., 2015; E. J. Spencer et al., 2013; Zucker et al., 2013). The success of the current intervention may have been due to the use of various scaffolding strategies to give contingent feedback and the provision of multiple learning opportunities through the explicit comprehension instructional strategies embedded within the storybook reading.

Limitations and Implications for Future Research

Although this study demonstrated promising results in improving children's story comprehension skills, there are some limitations that present avenues for further research. First, this study only measured the immediate outcomes of the explicit storybook comprehension instruction. Due to time constraints, there was no opportunity for follow-up studies to assess retention. Future research should thus consider incorporating a maintenance phase in the research design. Second, unlike most research studies where the research staff is composed of several individuals who implement and test the intervention, this study only had one researcher

who performed multiple roles, acting as both implementer and assessor. However, this study avoided the possibility of scoring bias by utilizing a second scorer to assess the scoring reliability. If possible, future research should consider separating the role of the implementer and assessor, and not have one researcher take on the responsibility for both roles in order to prevent bias. Third, this study employed a one-on-one format in order to control for child behavior and outside influences in children's responses, but future research should replicate the intervention within a small-group format to more closely approximate the context in which this intervention would be used within an MTSS framework. Furthermore, the feasibility and usability of the intervention should be tested by having teachers serve as the implementers. This would allow teachers an opportunity to receive feedback on the intervention's social validity, as well as provide a test of how easily the intervention can be implemented while retaining fidelity.

To date, narrative comprehension instruction has been an overlooked subject in preschool education (Cunningham & Zibulsky, 2011), despite the fact that narrative comprehension skills are necessary precursors to reading comprehension. The findings from this exploratory study demonstrate that it is possible to design and implement a scripted storybook intervention focused on increasing narrative comprehension skills in preschool children that might be used as Tier 2 intervention. The intervention for this study was modeled after previous studies that had successfully implemented questioning and scaffolding techniques. These techniques provide a promising starting point for the development of interventions focused on increasing children's literal and inferential comprehension skills in preschool settings. Through the practice of these

skills, children will be able to increase their narrative comprehension skills before they begin to read texts on their own.

REFERENCES

- Aguayo, K. B., Abbott, M., & Kaminski, R. (2014). *Preschool Early Literacy Indicator*. Eugene, OR: Dynamic Measurement Group.
- Applebee, A. N. (1978). *The child's concept of story: Ages two to seventeen*. Chicago, IL: The University of Chicago Press.
- Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1*, 91-97. doi: 10.1901/jaba.1968.1-91
- Bellon, M. L., Ogletree, B. T., & Harn, W. E. (2000). Repeated storybook reading as a language intervention for children with autism: A case study on the application of scaffolding. *Focus on Autism and Other Developmental Disabilities, 15*, 52-58. doi: 10.1177/108835760001500107
- Blank, M., Rose, S. A., & Berlin, L. J. (2003). *Preschool Language Assessment Instrument II*. Austin, TX: Pro-Ed.
- Brabham, E. G., & Lynch-Brown, C. (2002). Effects of teachers' reading-aloud styles on vocabulary acquisition and comprehension of students in the early elementary grades. *Journal of Educational Psychology, 94*, 465-473. doi: 10.1037//0022-0663.94.3.465
- Bui, Y. N. (2002). Using story-grammar instruction and picture books to increase reading comprehension. *Academic Exchange Quarterly, 6*(2), 127-132.
- Boren, J. J., & Devine, D. D. (1968). The repeated acquisition of behavioral chains. *Journal of the Experimental Analysis of Behavior, 11*, 651-660. doi: 10.1901/jeab.1968.11-65

- Bus, A. G., Van Ijzendoorn, M. H., & Pellegrini, A. D. (1995). Joint book reading makes for success in learning to read: A meta-analysis on intergenerational transmission of literacy. *Review of Educational Research*, 65, 1-21. doi: 10.3102/00346543065001001
- Cain, K., Oakhill, J., & Bryant, P. (2000). Investigating the causes of reading comprehension failure: The comprehension-age match design. *Reading and Writing*, 12, 31-40. doi: 10.1023/A:1008058319399
- Cain, K., Oakhill, J., & Bryant, P. (2004). Children's reading comprehension ability: Concurrent prediction by working memory, verbal ability, and component skills. *Journal of Educational Psychology*, 96, 31-42. doi: 10.1037/0022-0663.96.1.31
- Cain, K., & Oakhill, J. V. (1999). Inference making ability and its relation to comprehension failure in young children. *Reading and Writing*, 11, 489-503. doi: 10.1023/A:1008084120205
- Cain, K., Oakhill, J. V., Barnes, M. A., & Bryant, P. E. (2001). Comprehension skill, inference-making ability, and their relation to knowledge. *Memory & Cognition*, 29, 850-859. doi: 10.3758/BF03196414
- Catts, H. W., & Weismer, S. E. (2006). Language deficits in poor comprehenders: A case for the simple view of reading. *Journal of Speech, Language, and Hearing Research*, 49, 278-293. doi: 10.1044/1092-4388(2006/023)
- Chall, J., Jacobs, V., & Baldwin, L. (1990). *The reading crisis: Why poor children fail*. Cambridge, MA: Harvard University Press.

- Craig-Unkefer, L. A., & Kaiser, A. P. (2002). Improving the social communication skills of at-risk preschool children in a play context. *Topics in Early Childhood Special Education*, 22, 3-13. doi: 10.1177/027112140202200101
- Cunningham, A. E., & Stanovich, K. E. (1997). Early reading acquisition and its relation to reading experience and ability ten years later. *Developmental Psychology*, 33, 934-945. doi: 10.1037/0012-1649.33.6.934
- Cunningham, A. E., & Zibulsky, J. (2011). Tell me a story: Examining the benefits of share reading. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (Vol. 3, pp. 396-411). New York, NY: Guilford.
- Curenton, S. M., Justice, L. M., Zucker, T. A., & McGinty, A. S. (2013). Language and literacy curriculum and instruction. In V. Buysse & E. S. Peisner-Feinberg (Eds.), *Handbook of response to intervention in early childhood* (pp. 237-249). Baltimore, MD: Brookes.
- DeBruin-Parecki, A., & Pribesh, S. (2015). Evening the playing field. In A. DeBruin-Parecki, A. van Kleeck & S. Gear (Eds.), *Developing early comprehension* (pp. 1-18). Baltimore, MD: Brookes.
- DeBruin-Parecki, A., van Kleeck, A., & Gear, S. (2015). *Developing early comprehension*. Baltimore, MD: Brookes.
- DEC, NAEYC, & NHSA. (2013). *Frameworks for Response to Intervention in Early Childhood: Description and implications*. Retrieved from [http://www.naeyc.org/files/naeyc/RTI in Early Childhood.pdf](http://www.naeyc.org/files/naeyc/RTI%20in%20Early%20Childhood.pdf)

Dickinson, D. K., Golinkoff, R. M., & Hirsh-Pasek, K. (2010). Speaking out for language: Why language is central to reading development. *Educational Researcher*, 39, 305-310. doi: 10.3102/0013189X10370204

Dickinson, D. K., & Smith, M. W. (1994). Long-term effects of preschool teachers' book readings on low-income children's vocabulary and story comprehension. *Reading Research Quarterly*, 29, 104-122.

Dimino, J., Gersten, R., Carnine, D., & Blake, G. (1990). Story grammar: An approach for promoting at-risk secondary students' comprehension of literature. *The Elementary School Journal*, 91, 19-32.

Dooley, C. M. (2010). Young children's approaches to books: The emergence of comprehension. *The Reading Teacher*, 64, 120-130. doi: 10.1598/RT.64.2.4

Dooley, C. M., & Matthews, M. W. (2009). Emergent comprehension: Understanding comprehension development among young literacy learners. *Journal of Early Childhood Literacy*, 9, 269-294. doi: 10.1177/1468798409345110

Duchan, J. F. (2004). The foundational role of schemas in children's language and literacy learning. In C. A. Stone, E. R. Silliman, B. J. Ehren, & K. Appel (Eds.), *Handbook of language and literacy: Development and disorders* (pp. 380-397). New York, NY: Guilford Press.

Duke, N. K., Pressley, M., & Hilden, K. (2004). Difficulties with reading comprehension. In C. S. Stone, E. R. Silliman, B. J. Ehren, & K. Apel (Eds.), *Handbook of language and literacy* (pp. 501-520). New York, NY: Guilford Press.

- Dunn, L., & Dunn, L. (2007). *Peabody Picture Vocabulary Test* (4th ed.). MN: Pearson: Bloomington.
- Ezell, H. K., & Justice, L. M. (2005). *Shared storybook reading*. Baltimore, MD: Brookes.
- Franke, L., & Durbin, C. (2011). *Nurturing narratives*. Shawnee Mission, KS: AAPC.
- Fuchs, D., & Fuchs, L. S. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly*, 41, 93-99. doi: 10.1598/RRQ.41.1.4
- Garner, J. K., & Bochna, C. R. (2004). Transfer of a listening comprehension strategy to independent reading in first-grade students. *Early Childhood Education Journal*, 32, 69-74. doi: 10.1007/s10643-004-1071-y
- Gersten, R. M., Compton, D., Connor, C. M., Dimino, J., Santoro, L., Linan-Thompson, S. S., & Tilly, W. D. (2009). *Assisting students struggling with reading: Response to intervention and multi-tier intervention in the primary grades*. Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, US Department of Education Retrieved from http://ies.ed.gov/ncee/wwc/pdf/practice_guides/rti_reading_pg_021809.pdf
- Goldstein, H., Spencer, E. J., & Sherman, A. (2012). *Story Friends: A vocabulary and comprehension program*. Columbus, Ohio: The Ohio State University Research Foundation.
- Goodman, K. S., & Goodman, Y. M. (2009). Helping readers make sense of print: Research that supports a whole language pedagogy. In S. E. Israel & G. G. Duffy (Eds.), *Handbook of resaerch on reading comprehension* (pp. 91-114). New York: Routledge.

Greenwood, C. R., Bradfield, T., Kaminski, R., Linas, M., Carta, J. J., & Nylander, D. (2011).

The response to intervention (RTI) approach in early childhood. *Focus on Exceptional Children*, 43, 1-22.

Greenwood, C. R., Carta, J. J., Kelley, E. S., Guerrero, G., Kong, N. Y., Atwater, J., & Goldstein,

H. (in press). Systematic Replication of the Effects of a Supplementary, Technology-Assisted, Storybook Intervention for Preschool Children with Weak Vocabulary and Comprehension Skills. *Journal of Elementary Education*.

Griffin, T. M., Hemphill, L., Camp, L., & Wolf, D. P. (2004). Oral discourse in the preschool years and later literacy skills. *First Language*, 24, 123-147. doi:

10.1177/0142723704042369

Hayward, D., & Schneider, P. (2000). Effectiveness of teaching story grammar knowledge to pre-school children with language impairment. An exploratory study. *Child Language Teaching and Therapy*, 16, 255-284.

Hindman, A. H., Wasik, B. A., & Erhart, A. C. (2012). Shared book reading and Head Start preschoolers' vocabulary learning: The role of book-related discussion and curricular connections. *Early Education & Development*, 23, 451-474. doi:

10.1080/10409289.2010.537250

Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education.

Exceptional Children, 71, 165-179. doi: 10.1177/001440290507100203

- Horner, R. H., Swaminathan, H., Sugai, G., & Smolkowski, K. (2012). Considerations for the systematic analysis and use of single-case research. *Education and Treatment of Children*, 35, 269-290. doi: 10.1353/etc.2012.0011
- Kagan, S. L., & Rigby, E. (2003). *Policy Matters: Improving the readiness of children for school*. Washington, DC: Center for the Study of Social Policy.
- Kaiser, A. P., Hester, P. P., & McDuffie, A. S. (2001). Supporting communication in young children with developmental disabilities. *Mental Retardation and Developmental Disabilities Research Reviews*, 7, 143-150. doi: 10.1002/mrdd.1020
- Kaiser, A. P., Yoder, P. J., & Keetz, A. (1992). Evaluating milieu teaching. In S. F. Warren & J. E. Reichle (Eds.), *Causes and effects in communication and language intervention* (Vol. 1, pp. 9-47). Baltimore, MD: Brookes.
- Kelley, E. S., Goldstein, H., Spencer, T. D., & Sherman, A. (2015). Effects of automated Tier 2 storybook intervention on vocabulary and comprehension learning in preschool children with limited oral language skills. *Early Childhood Research Quarterly*, 31, 47-61. doi: 10.1016/j.ecresq.2014.12.004
- Kendeou, P., Bohn-Gettler, C., White, M. J., & Van Den Broek, P. (2008). Children's inference generation across different media. *Journal of Research in Reading*, 31, 259-272. doi: 10.1111/j.1467-9817.2008.00370.x
- Kendeou, P., van den Broek, P., White, M. J., & Lynch, J. (2007). Comprehension in preschool and early elementary children: Skill development and strategy interventions. In D. S.

- McNamara (Ed.), *Reading comprehension strategies: Theories, interventions, and technologies* (pp. 27-45). Mahwah, NJ: Lawrence Erlbaum.
- Kendeou, P., van den Broek, P., White, M. J., & Lynch, J. S. (2009). Predicting reading comprehension in early elementary school: The independent contributions of oral language and decoding skills. *Journal of Educational Psychology, 101*, 765-778. doi: 10.1037/a0015956
- Kennedy, C. H. (2005). *Single-case designs for educational research*. Boston, MA: Allyn and Bacon.
- Kouri, T. A. (2005). Lexical training through modeling and elicitation procedures with late talkers who have specific language impairment and developmental delays. *Journal of Speech, Language, and Hearing Research, 48*, 157-171. doi: 10.1044/1092-4388(2005/012)
- Lepola, J., Lynch, J., Laakkonen, E., Silvén, M., & Niemi, P. (2012). The role of inference making and other language skills in the development of narrative listening comprehension in 4-6-year-old children. *Reading Research Quarterly, 47*, 259-282. doi: 10.1002/RRQ.020
- Lonigan, C. J., Schatschneider, C., & Westberg, L. (2008). Impact of code-focused interventions on young children's early literacy skills. *Developing Early Literacy: Report of the National Early Literacy Panel* (pp. 107-151). Washington, DC.
- Lynch, J. S., & Lepola, J. (2015). Assessment of comprehension skills in prereaders: Theoretical foundations, methods, challenges, and opportunities In A. DeBruin-Parecki, A. van

- Kleeck & S. Gear (Eds.), *Developing early comprehension* (pp. 179-196). Baltimore, MD: Brookes.
- Lynch, J. S., van den Broek, P., Kremer, K. E., Kendeou, P., White, M. J., & Lorch, E. P. (2008). The development of narrative comprehension and its relation to other early reading skills. *Reading Psychology, 29*, 327-365. doi: 10.1080/02702710802165416
- Makdissi, H., & Boisclair, A. (2006). Interactive reading: A context for expanding the expression of causal relations in preschoolers. *Written Language & Literacy, 9*, 177-211. doi: 10.1075/wll.9.2.02mak
- Mandler, J. M., & Johnson, N. S. (1977). Remembrance of things parsed: Story structure and recall. *Cognitive Psychology, 9*, 111-151. doi: 10.1016/0010-0285(77)90006-8
- Maughan, B., & Hagell, A. (1996). Poor readers in adulthood: Psychosocial functioning. *Development and Psychopathology, 8*, 457-576. doi: 10.1017/S0954579400007197
- Maughan, B., Hagell, A., Rutter, M., & Yule, W. (1994). Poor readers in secondary school. *Reading and Writing, 6*, 125-150. doi: 10.1007/BF01026909
- McConnell, S., Bradfield, T., Wackerle-Hollman, A., & Rodriguez, M. (2013). *myIGDIs Early Literacy*. Minneapolis, MN: University of Minnesota Early Learning Labs.
- McGee, L. M., & Ukrainetz, T. A. (2009). Using scaffolding to teach phonemic awareness in preschool and kindergarten. *The Reading Teacher, 62*, 599-603. doi: 10.1598/RT.62.7.6
- McGinty, A. S., Sofka, A., Sutton, M., & Justice, L. M. (2006). Fostering print awareness through interactive shared reading. In A. van Kleeck (Ed.), *Sharing books and stories to promote language and literacy* (pp. 77-119). San Diego: Plural Publishing

- McKeown, M. G., & Beck, I. L. (2006). Encouraging young children's language interactions with stories. In D. K. Dickinson & S. B. Neuman (Eds.), *Handbook of early literacy research* (Vol. 2, pp. 281-294). New York: Guilford Press.
- Morrow, L. M. (1984). Reading stories to young children: Effects of story structure and traditional questioning strategies on comprehension. *Journal of Literacy Research*, 16, 273-288. doi: 10.1080/10862968409547521
- Nation, K., Cocksey, J., Taylor, J. S., & Bishop, D. V. (2010). A longitudinal investigation of early reading and language skills in children with poor reading comprehension. *Journal of Child Psychology and Psychiatry*, 51, 1031-1039. doi: 10.1111/j.1469-7610.2010.02254.x
- National Early Literacy Panel. (2008). Developing early literacy: Report of the National Early Literacy Panel. Washington, DC: National Institute for Literacy.
- National Professional Development Center on Inclusion. (2012). *Response to intervention (RTI) in early childhood: building consensus on the defining features*. Chapel Hill, NC: The University of North Carolina, FPG Child Development Institute, National Professional Development Center on Inclusion.
- Norris, J. A., & Hoffman, P. R. (1990). Language intervention within naturalistic environments. *Language, Speech, and Hearing Services in Schools*, 21, 72-84. doi: 10.1044/0161-1461.2102.72
- Notari-Syverson, A. N., O'Connor, R. E., & Vadasy, P. F. (2007). *Ladders to literacy: A preschool activity book* (2 ed.). Baltimore, MD: Brookes.

- O'Connor, R. E., Notari-Syverson, N., & Vadasy, P. (2005). *Ladders to literacy: A kindergarten activity book*. Baltimore, MD: Brookes.
- Oakhill, J. V., & Cain, K. (2004). The development of comprehension skills. In T. Nunes & P. Bryant (Eds.), *Handbook of children's literacy* (pp. 155-180). Dordrecht, The Netherlands: Kluwer.
- Paris, A. H., & Paris, S. (2008). Narrative bridges to comprehension. In A. DeBruin-Parecki (Ed.), *Effective early literacy practice* (pp. 25-38). Baltimore, MD: Brookes.
- Paris, A. H., & Paris, S. G. (2003). Assessing narrative comprehension in young children. *Reading Research Quarterly*, 38, 36-76. doi: 10.1598/RRQ.38.1.3
- Peisner-Feinberg, E. S., Buysse, V., Benshoff, L., & Soukakou, E. (2011). Recognition & Response: Response to intervention for pre-kindergarten. In C. Groark, S. M. Eidelman, L. Kaczmarek & S. Maude (Eds.), *Early childhood intervention: Shaping the future for children with special needs and their families* (Vol. 3, pp. 37-53). Santa Barbara, CA: Praeger.
- Pentimonti, J. M., Justice, L. M., & Piasta, S. B. (2013). Sharing books with children. In T. Shanahan & C. J. Lonigan (Eds.), *Early childhood literacy* (pp. 117-134). Baltimore, MD: Brookes.
- Pressley, M., & Wharton-McDonald, R. (1997). Skilled comprehension and its development through instruction. *School Psychology Review*, 26, 448-466.

- Short, E. J., & Ryan, E. B. (1984). Metacognitive differences between skilled and less skilled readers: Remediating deficits through story grammar and attribution training. *Journal of Educational Psychology*, 76, 225-235. doi: 10.1037/0022-0663.76.2.225
- Skibbe, L., Behnke, M., & Justice, L. M. (2004). Parental scaffolding of children's phonological awareness skills interactions between mothers and their preschoolers with language difficulties. *Communication Disorders Quarterly*, 25, 189-203. doi: 10.1177/15257401040250040401
- Snow, C. E., Burns, M. S., & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academies Press.
- Spencer, E. J., Goldstein, H., Sherman, A., Noe, S., Tabbah, R., Ziolkowski, R., & Schneider, N. (2013). Effects of an automated vocabulary and comprehension intervention: An early efficacy study. *Journal of Early Intervention*, 34, 195-221. 1053815112471990. doi: 10.1177/1053815112471990
- Spencer, T. D., & Goldstein, H. (2011). The assessment of story comprehension (ASC): A preliminary investigation of reliability and validity. In S. Piasta (Chair.), *New measures for investigation emergent literacy environments and skill development. Symposium presented at the annual meeting of the Society for the Scientific Study of Reading*.
- Spencer, T. D., Goldstein, H., Kelley, E. S., Sherman, A., & McCune, L. (2015). A curriculum-based measure of language comprehension for preschoolers: Reliability and validity of the Assessment of Story Comprehension (ASC). *Manuscript submitted for publication*.

- Stein, N. L., & Glenn, C. G. (1979). An Analysis of Story Comprehension in Elementary School Children. In R. O. Freedle (Ed.), *New directions in discourse processing* (Vol. 2, pp. 53-120). Norwood, NJ: Ablex.
- Storch, S. A., & Whitehurst, G. J. (2002). Oral language and code-related precursors to reading: Evidence from a longitudinal structural model. *Developmental Psychology*, 38, 934-947. doi: 10.1037//0012-1649.38.6.934
- Stothard, S. E., & Hulme, C. (1992). Reading comprehension difficulties in children. *Reading and Writing*, 4, 245-256. doi: 10.1007/BF01027150
- Swanson, E., Vaughn, S., Wanzek, J., Petscher, Y., Heckert, J., Cavanaugh, C., . . . Tackett, K. (2011). A synthesis of read-aloud interventions on early reading outcomes among preschool through third graders at risk for reading difficulties. *Journal of Learning Disabilities*, 44, 258-275. doi: 10.1177/0022219410378444
- Tabors, P. O., Snow, C. E., & Dickinson, D. K. (2001). Homes and schools together; Supporting language and literacy development. In D. K. Dickinson & P. O. Tabors (Eds.), *Beginning literacy with language: Young children learning at home and school* (pp. 313-334). Baltimore, MD: Brookes.
- Taylor, B. A., & Harris, S. L. (1995). Teaching children with autism to seek information: Acquisition of novel information and generalization of responding. *Journal of Applied Behavior Analysis*, 28, 3-14. doi: 10.1901/jaba.1995.28-3
- Teal, W. H., & Martinez, M. G. (1996). Reading aloud to young children: Teachers' reading styles and kindergarteners' text comprehension. In C. Pontecorvo, M. Orsolini, B. Burge

- & L. B. Resnick (Eds.), *Children's early text construction* (pp. 321-344). Mahwah, NJ: Erlbaum.
- The National Education Goals Panel. (1997). *Getting a good start in school*. Washington DC: National Education Goals Panel.
- Tompkins, V., Guo, Y., & Justice, L. M. (2013). Inference generation, story comprehension, and language skills in the preschool years. *Reading and Writing*, 26, 403-429. doi: 10.1007/s11145-012-9374-7
- Trabasso, T., & Nickels, M. (1992). The development of goal plans of action in the narration of a picture story. *Discourse Processes*, 15, 249-275. doi: 10.1080/01638539209544812
- Trabasso, T., Secco, T., & van den Broek, P. W. (1984). Causal cohesion and story coherence. In H. Mandl, N. L. Stein & T. Trabasso (Eds.), *Learning and comprehension of text* (pp. 83-111). Mahwah, NJ: Erlbaum.
- Ukrainetz, T. A. (2007). Assessment and intervention within a contextualized skill framework In T. A. Ukrainetz (Ed.), *Contextualized language intervention* (pp. 7-58). Austin, TX: Pro-Ed.
- van den Broek, P., Kendeou, P., Kremer, K., Lynch, J. S., Butler, J., White, M. J., & Lorch, E. P. (2005). Assessment of comprehension abilities in young children. In S. Stahl & S. Paris (Eds.), *Children's reading comprehension and assessment* (pp. 107-130). Mahwah, NJ: Erlbaum.

- van Kleeck, A. (2008). Providing preschool foundations for later reading comprehension: The importance of and ideas of targeting inferencing in storybook-sharing interventions. *Psychology in the Schools, 45*, 627-643. doi: 10.1002/pits.20314
- van Kleeck, A., Vander Woude, J., & Hammett, L. (2006). Fostering literal and inferential language skills in Head Start preschoolers with language impairment using scripted book-sharing discussions. *American Journal of Speech-Language Pathology, 15*, 85-95. doi: 10.1044/1058-0360(2006/009)
- Vygotsky, L. S. (1978). *The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Wasik, B. A., & Hindman, A. H. (2014). Understanding the Active Ingredients in an Effective Preschool Vocabulary Intervention: An Exploratory Study of Teacher and Child Talk During Book Reading. *Early Education and Development, 25*, 1035-1056. doi: 10.1080/10409289.2014.896064
- Wenner, J. (2004). Preschoolers' comprehension of goal structure in narratives. *Memory, 12*, 193-202. doi: 10.1080/09658210244000478
- White House. (2013). *Early Learning*. Retrieved from <http://www.whitehouse.gov/issues/education/early-childhood>
- Whitehurst, G. J., Arnold, D. S., Epstein, J. N., Angell, A. L., Smith, M., & Fischel, J. E. (1994). A picture book reading intervention in day care and home for children from low-income families. *Developmental Psychology, 30*, 679-689. doi: 10.1037/0012-1649.30.5.679

- Wiig, E. H., Secord, W. A., & Semel, E. (2004). *Clinical evaluation of language fundamentals-Preschool* (2nd ed.). San Antonio, TX: Harcourt Assessment
- Wood, D., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry*, 17, 89-100. doi: 10.1111/j.1469-7610.1976.tb00381.x
- Zucker, T. A., Justice, L. M., Piasta, S. B., & Kaderavek, J. N. (2010). Preschool teachers' literal and inferential questions and children's responses during whole-class shared reading. *Early Childhood Research Quarterly*, 25, 65-83. doi: 10.1016/j.ecresq.2009.07.001
- Zucker, T. A., Solari, E. J., Landry, S. H., & Swank, P. R. (2013). Effects of a Brief Tiered Language Intervention for Prekindergartners at Risk. *Early Education & Development*, 24, 366-392. doi: 10.1080/10409289.2012.664763

Table 1.

Participant Characteristics

Child	Age (Month)	Gender	ELL	IEP
A	57	F	No	No
B	53	M	No	No
C	62	M	No	No
D	53	F	No	Yes
E	61	F	No	No
F	58	M	No	No
G	56	F	No	No
<i>Count</i>	7 in All	4 Female	0 ELL	1 IEP
<i>Mean</i>	57			
<i>SD</i>	3.5			
<i>Min</i>	53			
<i>Max</i>	62			

Note. Age is reported in months and is the child's age at the beginning of the study. ELL = English language learner, IEP = Individualized Education Plan.

Table 2.

Participants Language Skills at Start of Study

Child	Picture Naming <i>myIGDIs</i> (Benchmark = 3)	PELI Comprehension (Benchmark = 11)	PPVT-IV (Pretest Standard Score)	CELF-P2 (Pretest Standard Score)
A	8	11	98	104
B	6	10	93	96
C	7	10	108	88
D	7	7	100	90
E	5	10	94	81
F	3	7	92	84
G	4	10	103	83
<i>Mean</i>	5.7	9.3	98.3	89.4
<i>SD</i>	1.8	1.6	5.9	8.2
<i>Min</i>	3	7	92	81
<i>Max</i>	8	11	108	104

Note. PELI Comprehension = Preschool Early Literacy Indicator Comprehension subtest.

PPVT-IV = Peabody Picture Vocabulary Test – fourth edition. CELF-P2 = Clinical Evaluation of Language Fundamentals – Preschool Second edition.

Table 3.

Children's Point Earning on Mastery Monitory Probes by Conditions

Child	Baseline						Intervention					
	Pre			Post			Pre			Post		
	M	SD		M	SD		M	SD		M	SD	
A	9.33	3.21	10.67	3.79	1.33	1.15	13.23	3.96	19.54	2.15	6.31	3.17
B	8.67	1.51	8.67	3.44	0.00	2.45	12.2	4.26	17.80	0.92	5.60	3.95
C	9.00	2.00	8.67	2.52	-0.33	0.58	10.62	5.59	17.00	2.86	6.38	3.45
D	7.50	1.64	8.83	3.37	1.33	1.86	11.7	3.40	17.80	3.22	6.10	3.31
E	10.33	2.16	11.17	1.33	0.83	1.17	10.8	3.29	16.80	1.75	6.00	3.30
F	6.67	2.52	7.67	2.08	1.00	1.00	9.85	4.32	16.31	3.86	6.46	3.99
G	8.33	1.97	9.83	2.14	1.50	1.05	13.7	4.40	17.90	3.48	4.00	2.78
All												
Children	8.61	2.15	9.45	2.73	0.85	1.56	11.67	4.34	17.59	2.89	5.92	3.40
												1.44 (0.33)

Note. SMD = Standardized Mean Difference. $SMD = M_B - M_A / SD_A$

Table 4.

Children's Assessed Comprehension Skills on the Two Progress Monitoring Measures by Conditions

Child	Measure	Baseline		Intervention		Gain	SMD
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
A	ASC	10.50	0.71	14.00	0.82	3.50	4.95
	PELI Comprehension	11.00 ^a		20.00	1.00	9.00	
B	ASC	7.67	0.58	13.67	0.58	6.00	10.39
	PELI Comprehension	10.00		17.33	1.53	7.33	
C	ASC	6.00	1.41	13.75	1.50	7.75	5.48
	PELI Comprehension	10.00		18.33	0.58	8.33	
D	ASC	6.33	2.52	11.67	1.53	5.34	2.12
	PELI Comprehension	7.00		18.33	0.58	11.33	
E	ASC	6.33	1.53	12.67	1.53	6.34	4.15
	PELI Comprehension	10.00		18.67	1.15	8.67	
F	ASC	4.50	0.71	13.25	0.96	8.75	12.37
	PELI Comprehension	7.00		18.33	1.53	11.33	
G	ASC	5.33	0.58	13.67	1.53	8.34	14.43
	PELI Comprehension	10.00		20.00	1.00	10.00	
All	ASC	6.61	2.03	13.29	1.30	6.68	7.70 (4.67)
Children	PELI comprehension	9.29	1.60	18.71	1.31	9.42	

Note. ASC = Assessment of Story Comprehension. PELI Comprehension = Preschool Early Literacy Indicators Comprehension subtest. SMD = Standardized Mean Difference.

$$SMD = M_B - M_A / SD_A$$

^a PELI Comprehension subtest pretest = one occasion, no mean and no standard deviation.

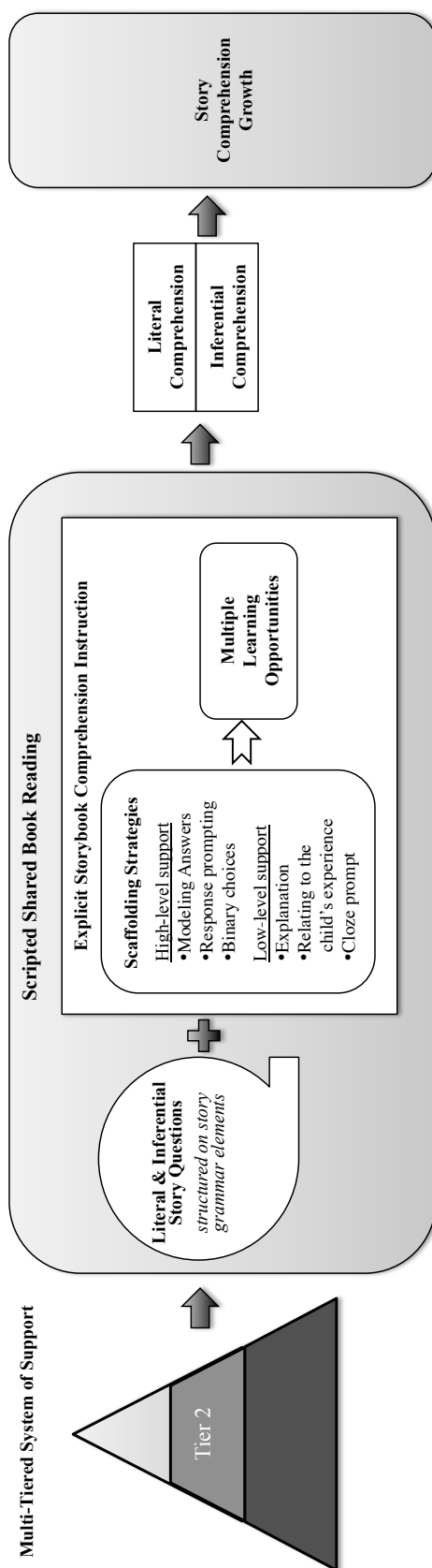


Figure 1. Conceptual framework of the explicit storybook comprehension instruction.

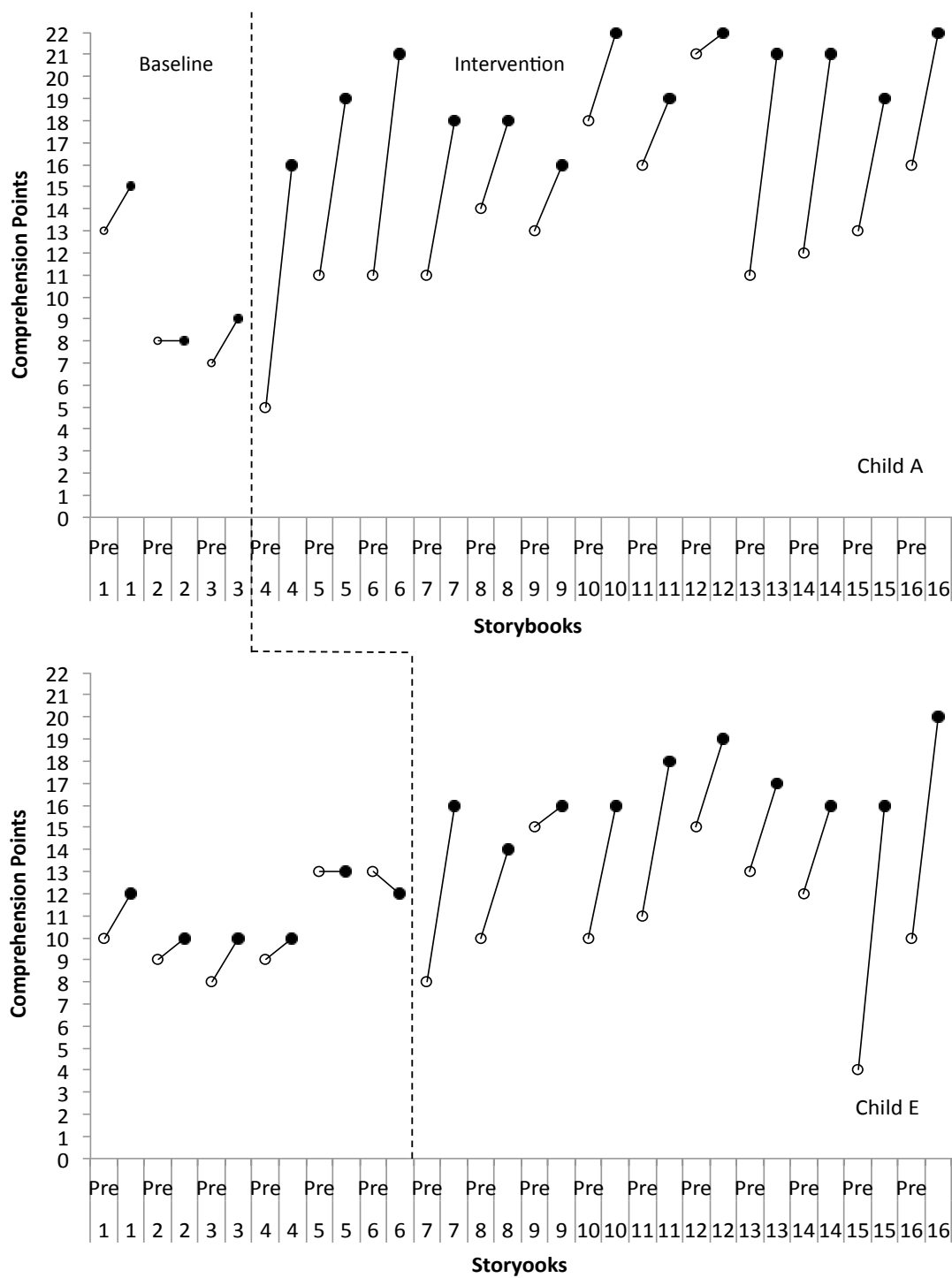


Figure 2. Comprehension scores on the mastery monitoring probes for Child A and E.

Maximum score for the pretest (open circles) and posttest (closed circles) assessment was 22 points.

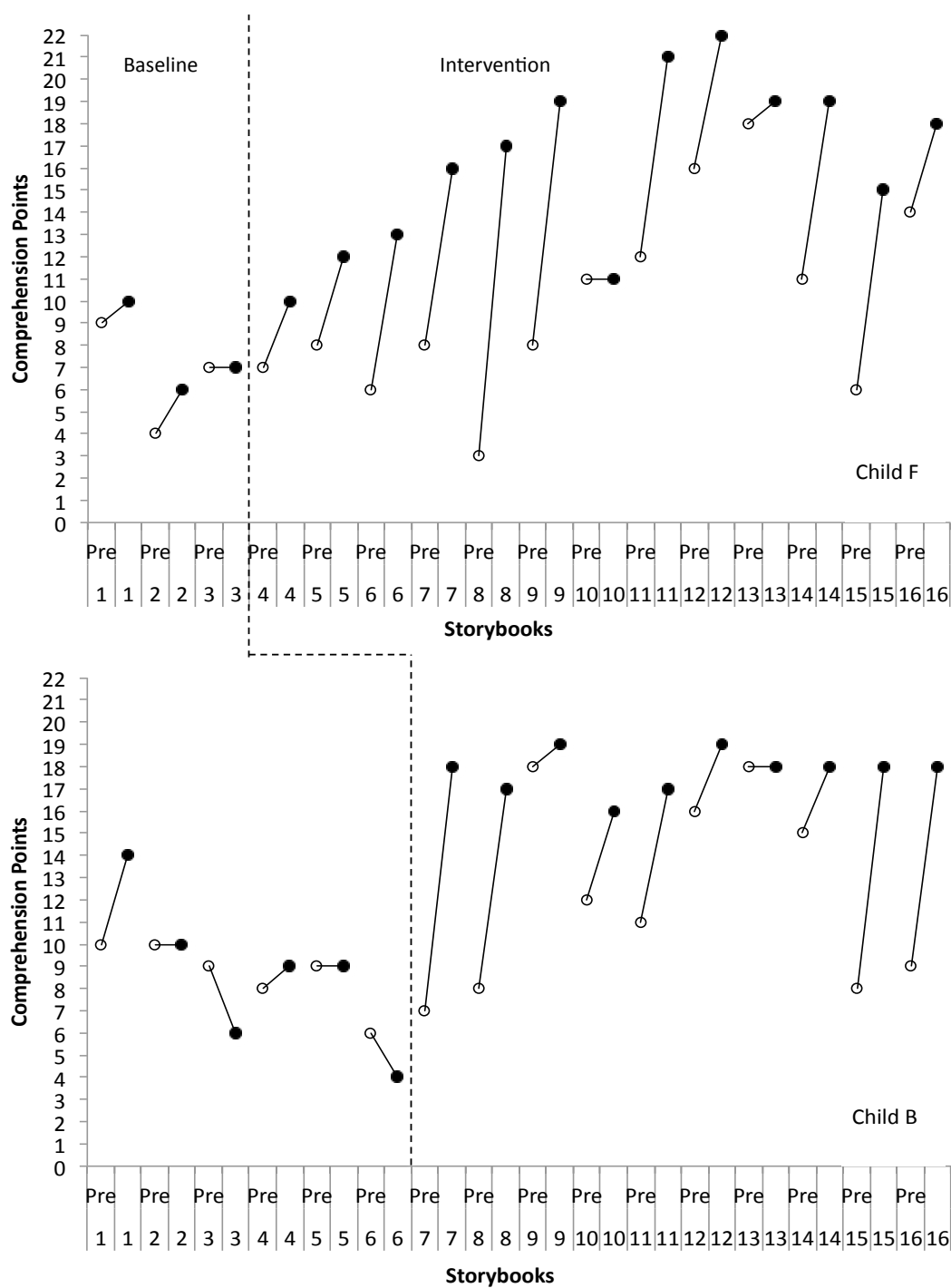


Figure 3. Comprehension scores on the mastery monitoring probes for Child F and B.

Maximum score for the pretest (open circles) and posttest (closed circles) assessment was 22 points.

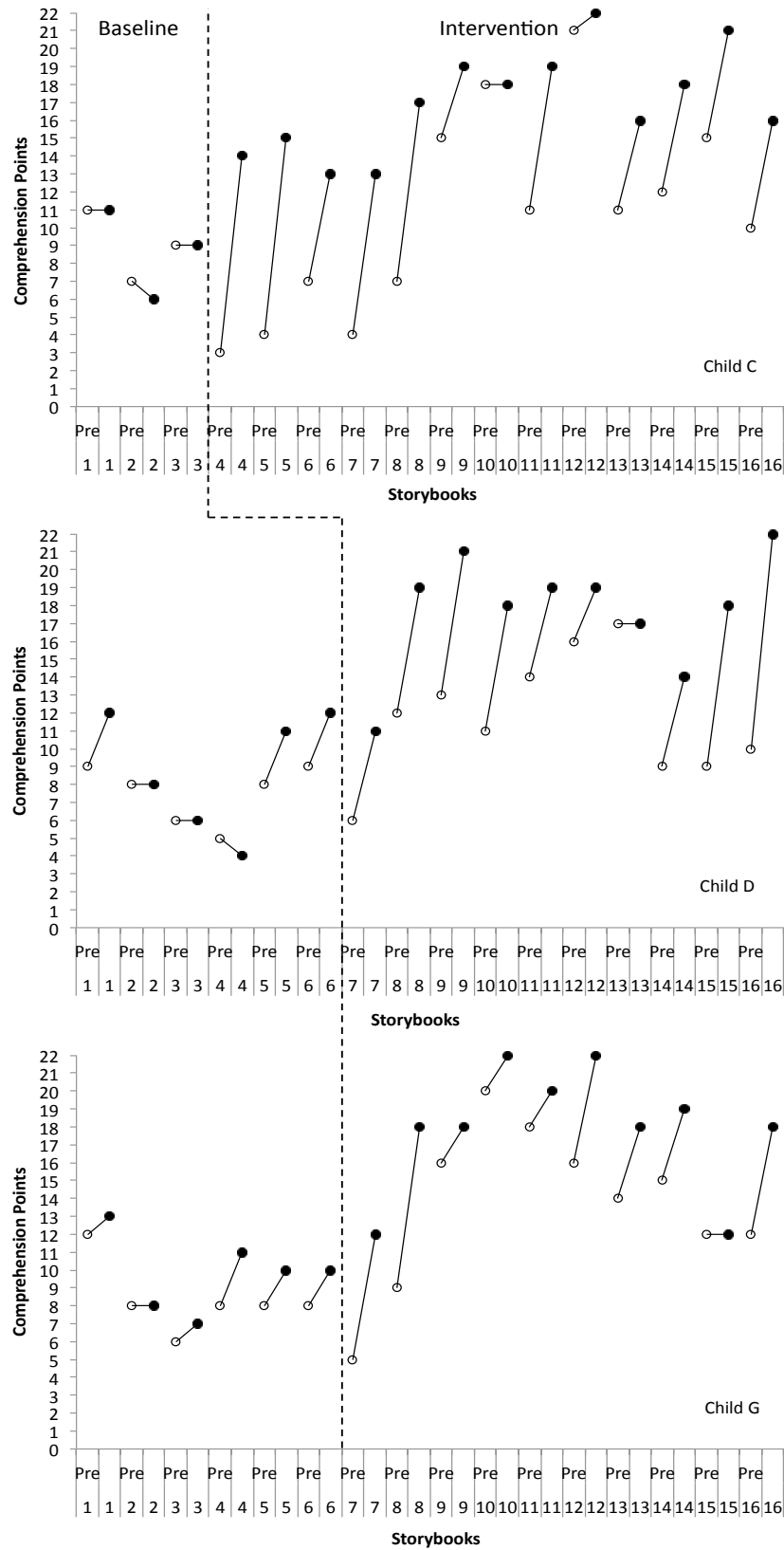


Figure 4. Comprehension scores on the mastery monitoring probes for Child C, D, and G.

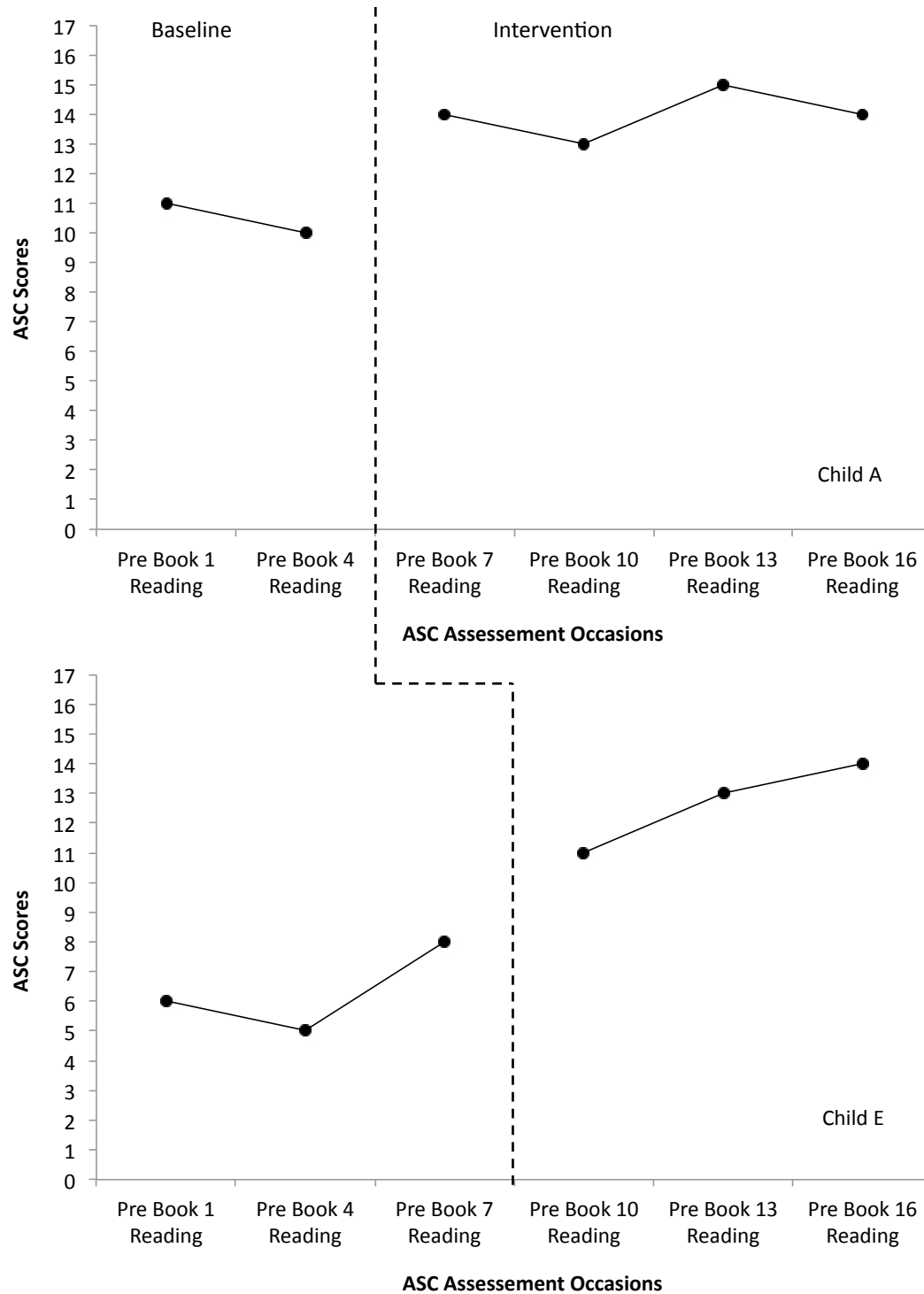


Figure 5. The ASC Scores for Child A and E. Children were assessed on ASC on multiple occasions (before reading storybooks 1, 4, 7, 10, 13, and 16).

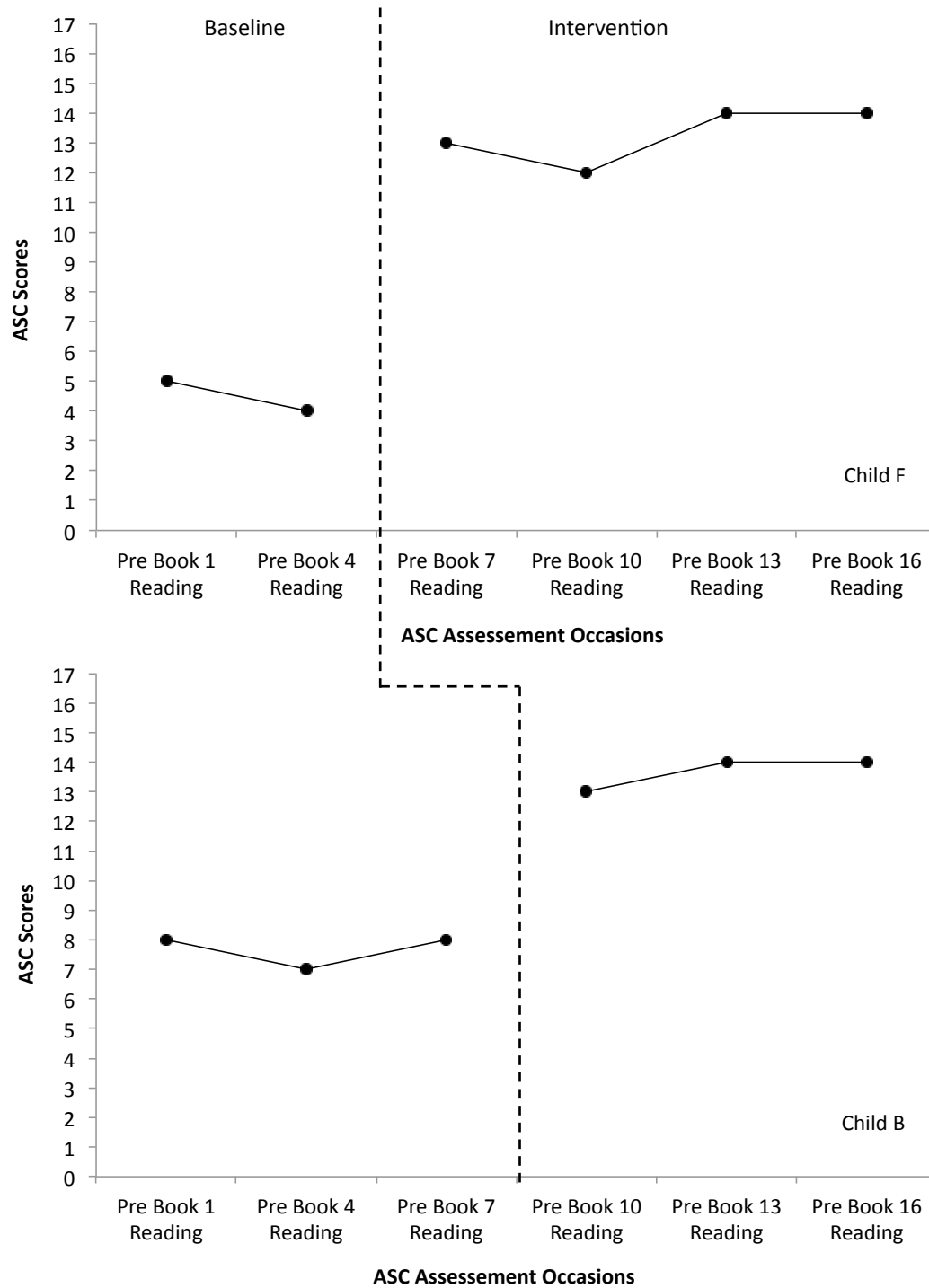


Figure 6. The ASC Scores for Child F and B. Children were assessed on ASC on multiple occasions (before reading storybooks 1, 4, 7, 10, 13, and 16).

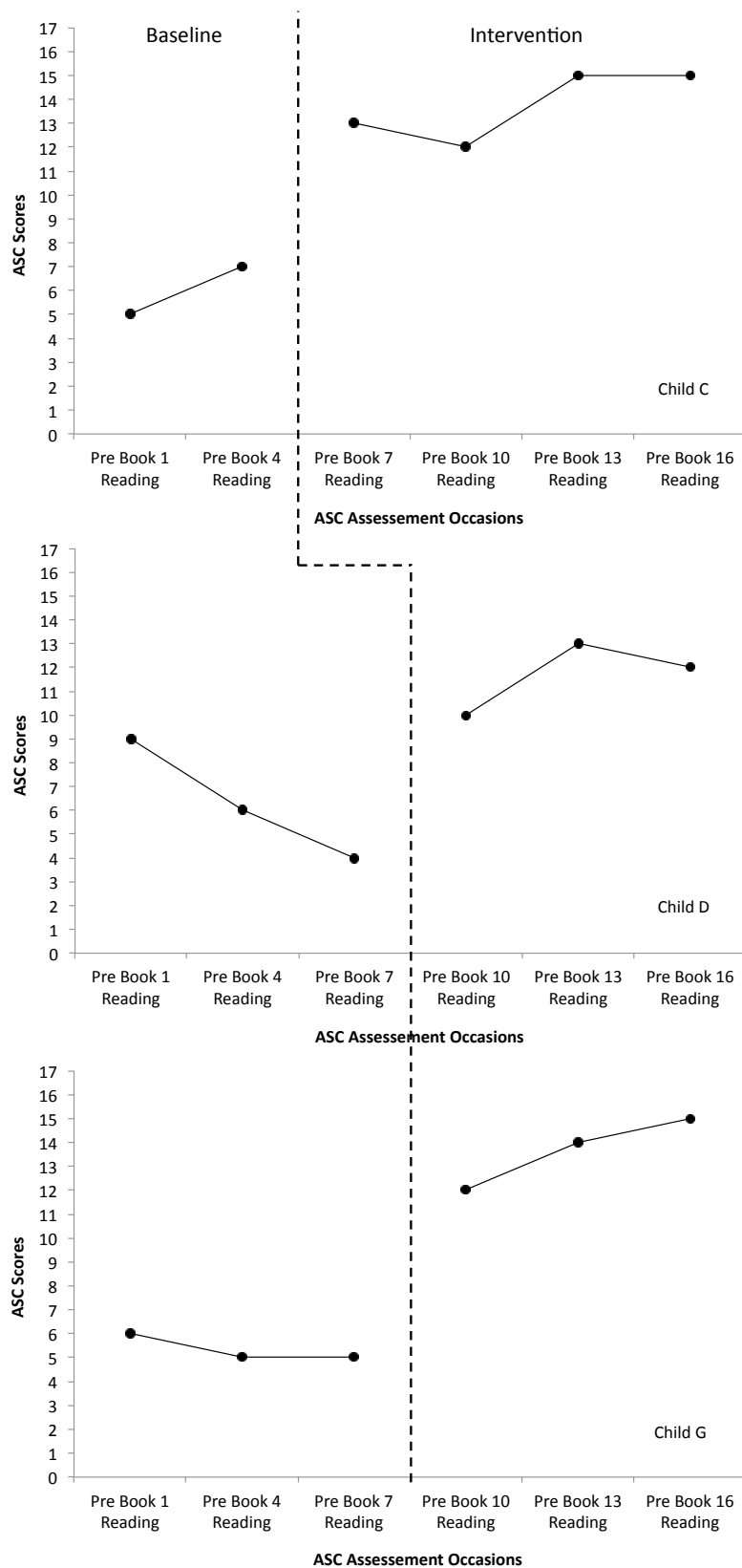


Figure 7. The ASC scores for Child C, D, and G.

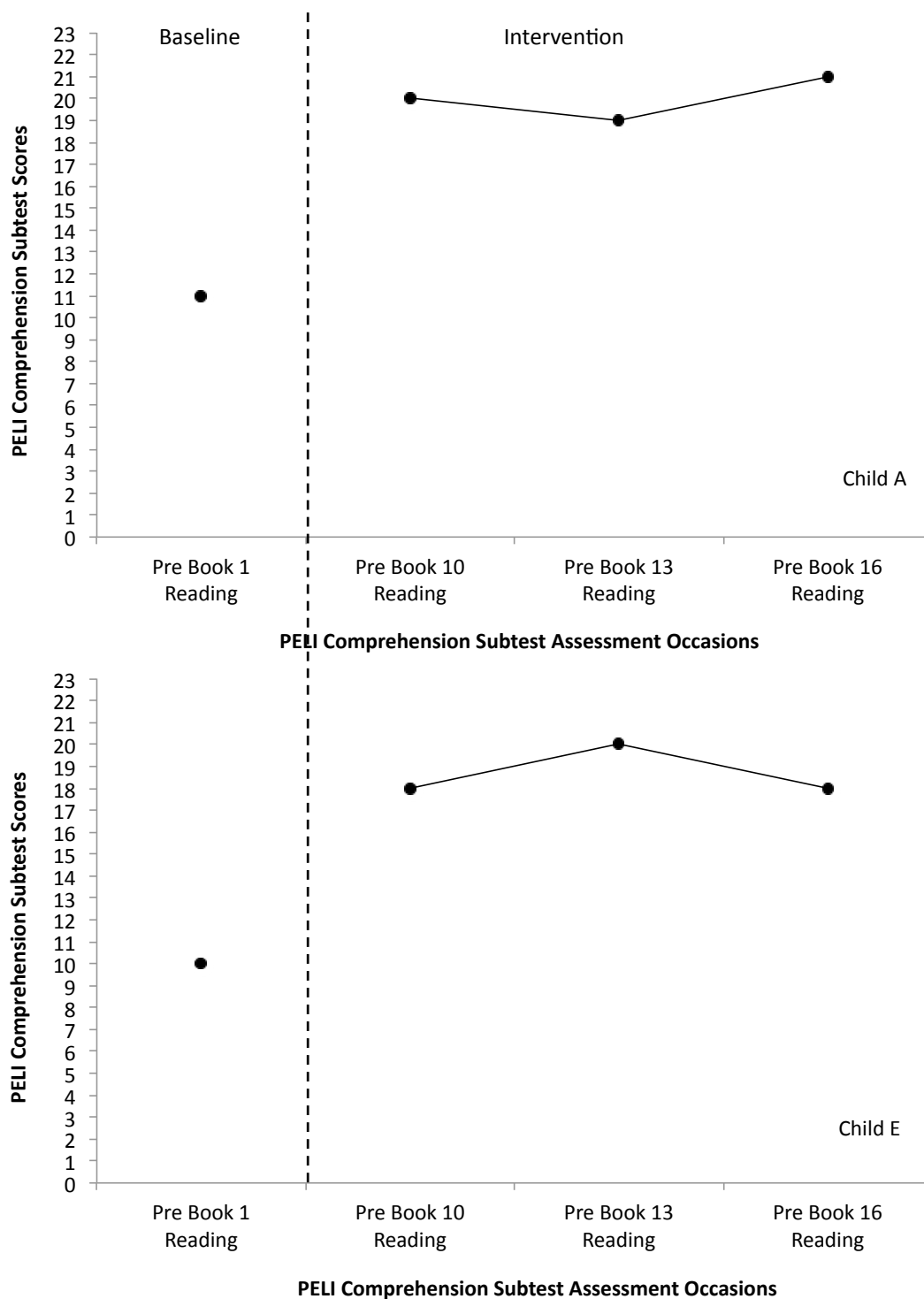


Figure 8. The PELI Comprehension subtest scores for Child A and E. Children were assessed on PELI Comprehension subtest on multiple occasions (before reading storybooks 1, 10, 13, and 16).

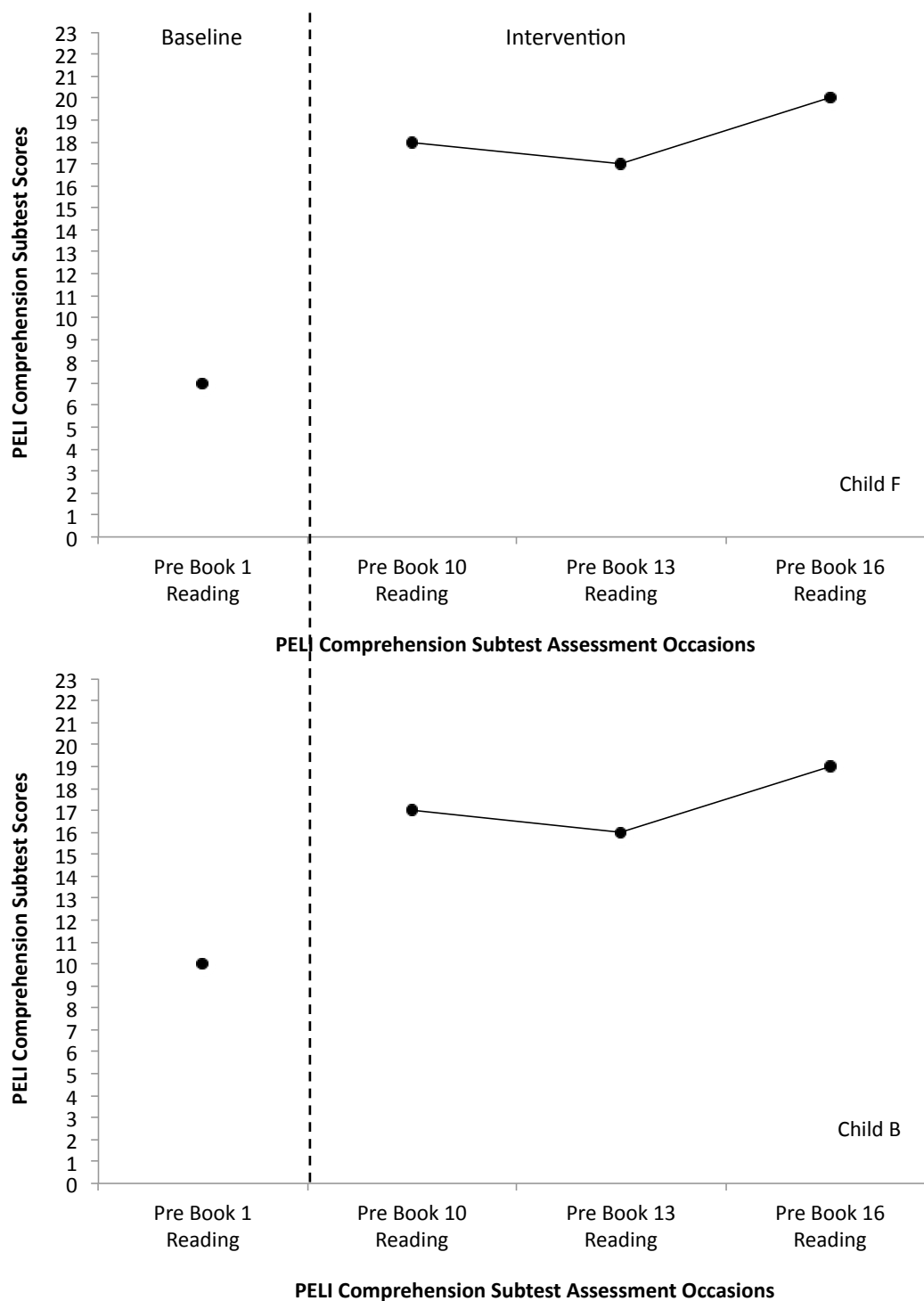


Figure 9. The PELI Comprehension subtest scores for Child F and B. Children were assessed on PELI Comprehension subtest on multiple occasions (before reading storybooks 1, 10, 13, and 16).

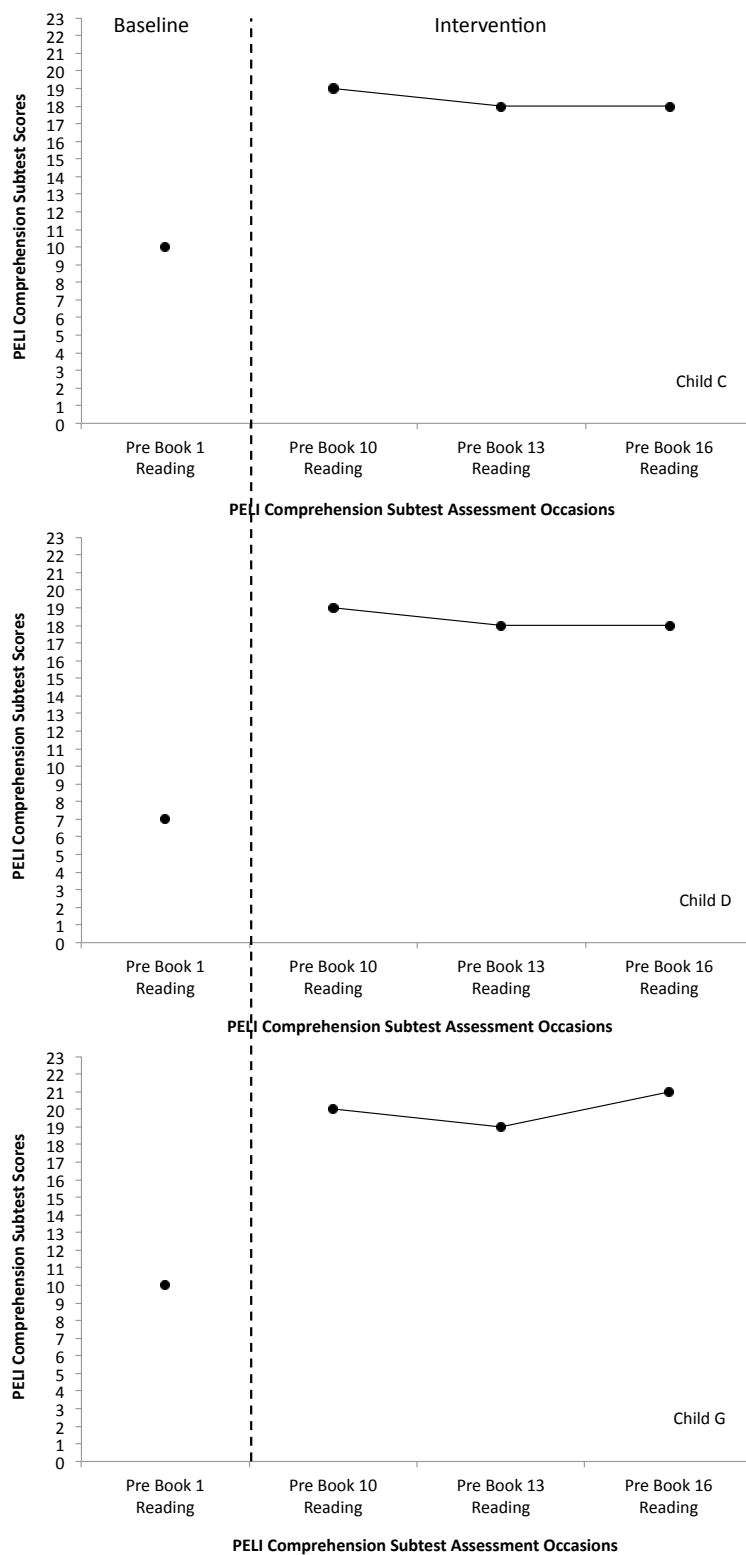


Figure 10. The PELI Comprehension subtest scores for Child C, D, and G.

Appendix A: Teacher Consent Form

The University of Kansas Story Comprehension Intervention for Preschool children

Teacher Consent Form

Dear Teacher,

My name is Ruby Chan and I am a doctoral student in the special education department at the University of Kansas. I am interested in studying teaching strategies to support preschool children's early literacy. This consent form describes a specific teaching strategy for improving young children's skill in understanding stories and responding to questions about stories. Children who are at risk for language delay are more likely to encounter difficulties in acquiring story comprehension skills, and these skills are critical for becoming a successful reader. Therefore, it is important to design and test teaching strategies that foster children's ability to understand stories. I am asking your permission to conduct this study in your classroom.

What does this study involve?

Assessments: If you consent, I will conduct a brief screening of the language skills of children in your classroom who will be eligible for kindergarten next fall and who have parent consent for this project. The primary purpose of this screener is to identify children who may need additional support to develop the language and early literacy skills they will need in kindergarten. This screening takes about 5 minutes per child.

Based on the result of the first screener, I will identify children who fall below 4-year-old benchmarks and who, thus, might be good candidates for the intervention. To learn more about these children's skills, I will give each child standardized tests that measure different aspects of language skills. These tests will take approximately 40 minutes per child. I will break up the testing time into smaller periods to avoid tiring children and to allow them to fit more easily into your classroom schedule. I will use all the assessments to select a final group of children who seem most likely to benefit from the intervention and to determine the intervention that would be most appropriate for each child. These tests will be repeated at the end of the intervention.

Intervention: Children identified to participate in the study will participate in individual 15-min book-sharing sessions conducted by me (the study researcher) in their classroom. The book-sharing intervention will be implemented 4-5 times a week for approximately 6-10 weeks. Each week during the intervention, participating children will follow along with the researcher as she reads the story and respond to comprehension questions she poses about the story using scripted shared-book reading strategies. At the end of every 6 reading sessions, children will take a story comprehension assessment (5-10 min). Each reading session will be videotaped in order to track children's progress and also to make sure I am implementing the intervention consistently across children. I will work with you to make decisions about arranging and scheduling the



intervention sessions as well as the assessments. My goal is to support your classrooms instructional goals for children and to minimize intrusion.

Are there any risks in this research?

I believe there is little risk to you or the children in regard to be involved in this study. If you have any concerns, please feel free to contact me or my supervisor (see the contact information at the end of this form). You will decide if you wish to participate in this study according to the following information provided for you. Of course, you can choose not to participate in this study. Also, if you would like to withdraw your consent at any time, you have the right to do that.

Is there any payment for participation?

For classrooms that have 2 children in intervention, I will give \$30 gift card per lead teacher, to compensate teachers for the time I spend in the classroom and for the coordination required to accommodate my intervention. I may ask for your social security number in order to comply with federal and state tax and accounting regulations

What are the benefits of being in this study?

I believe the learning activities in this study will be helpful for children who may need additional instruction to become a successful reader. I will use information from this study to develop strategies to improve preschool education in our community, as well as in other communities.

What information will I ask for?

As described above, information will include assessments of children's early literacy skills, observations of children participating in the intervention, and your report of selected child participants' learning behaviors.

How will I protect your privacy?

Everything I learn from you and the children is strictly confidential. Videos will be identified by ID numbers and will not include names of children or teachers. All information will be stored in a locked file cabinet in my office until my study is completed at which point it will be shredded. I will not share any information that identifies you with anyone, with one exception. My study data may be reviewed by the officials at the University of Kansas who make sure that the research is done in an ethical and legal way, and that participants are treated fairly. When I report the results of this study, you will never be named or identified in anyway. Your identifiable information will not be shared unless (a) it is required by law or university policy, or (b) you give written permission. By signing this consent form, you give me permission to use and share this information, within the limits described above, at any time in the future.

If you give consent now, can you change your mind later?

Yes. You may withdraw your consent to participate in this project at any time without penalty or loss of benefits to which you are entitled, including employment. You also have the right to cancel your permission to use and disclose information collected about you.



Questions about Participation?

I will be glad to answer any questions you might have now or at any time during the study – even after the study is finished. So, please feel free to contact me. If you have any additional questions about your rights as a research participant, you may call (785) 864-7429 or write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563, email irb@ku.edu.

If you agree to participate, please sign below and keep one copy for yourself. Thanks very much for your time and assistance.

Sincerely,

Ruby Chan, M.S.
 Doctoral Student
 Dept of Special Education
 Juniper Gardens Children's Project
 University of Kansas
 444 Minnesota Ave.
 Suite 300, Kansas City, KS 66101
 785-727-3543
rubychan@ku.edu

Judith Carta, PhD
 Faculty Supervisor
 Dept of Special Education
 Juniper Gardens Children's Project
 University of Kansas
 444 Minnesota Ave.
 Suite 300, Kansas City, KS 66101
 913-321-3143
carta@ku.edu

PARTICIPANT CERTIFICATION:

I have read the information in this form, and I have had a chance to ask questions. I have received answers to any questions I had about information that will be used and shared in this study. I know that the information about me children in my classroom will be kept private. I agree to participate in this study, knowing that I can withdraw my consent if I decide to. I also agree to the use and sharing of my information as described above. By signing this, I verify that I am at least 18 years of age and have received a copy of this consent form to keep.

 Your Name (Please print clearly)

 School Name

 Signature

 Date Signed



Appendix B: Parent Consent Form

The University of Kansas Story Comprehension Intervention for Preschool children

Parent Consent Form

Dear Parent,

My name is Ruby Chan and I am a doctoral student in the special education department at the University of Kansas. I am interested in developing new ways for teachers to help children learn skills in preschool that will help them become good readers when they reach grade school. This consent form describes a new teaching practice that will help children become better at understanding stories that are read to them. Some children have difficulty understanding stories and answering questions about stories and these are important skills in learning to read. Therefore, this research study will test a teaching practice that helps children learn how to understand stories and answer questions about it. I am asking your permission to allow your child to participate in the study.

What does this study involve?

Assessments: If you give consent, please answer the short survey about your family, attached to this form. Then at school, I will give your child a 5-minute test of language skills such as vocabulary. The purpose of this test is to identify children who might benefit from additional activities to help them learn the early reading skills they will need in kindergarten.

If the 5-minute test indicates your child might benefit from the intervention, I will give your child some additional language assessments. These tests, which take a total of about 40 minutes, will help me learn more about your child's skills. I will break up the testing time into smaller periods to avoid tiring children. These assessments will be repeated at the end of the study.

Learning Activity: Children who are eligible in the study will participate in individual 15-min book-sharing session conducted by me (the study researcher) in their classroom. The intervention will be implemented 4-5 times a week for approximately 6-10 weeks. Each week during the session, I will read a storybook to all participating children and then ask them some specific questions and show them how to answer the questions. At the end of every 6 reading sessions, children will be asked a set of questions about the story to see if they understand the story (5-10 min). Each reading session will be videotaped to check on children's progress and also to help me check whether I am carrying out the sessions the same way across participating children. I will work with teachers to make sure that these learning activities contribute to what children are already learning and do not keep them from other important activities in the classroom. I will let you know if your child is selected to participate in this learning activity.

Are there any risks in this research?

I believe there is little risk to you or your child in regard to be involved in this study. If you have any concerns, please feel free to contact me or my supervisor (see the contact information at the



end of this form). You will decide if you wish your child to participate in this study according to the following information provided for you. Of course, you can choose not to participate in this study. Also, if you would like to withdraw your consent at any time, you have the right to do that.

Is there any payment for participation? There will not be any payment for this study.

What are the benefits of being in this study?

I believe the learning activities in this study will be helpful for children who may need additional instruction to be ready for learning to read in kindergarten. I will use information from this study to develop strategies to improve preschool education in our community, as well as in other communities.

What information will I ask for?

As described above, information will include assessments of children's language skills, observations of children participating in learning activities, and your and teachers' reports of child's learning behaviors.

Use of Videotape

All reading sessions will be videotaped. The only purpose of videotaping is to help the researcher collect and code data of the child's progress and the researcher's implementation of the intervention. However, the videotapes will not be used for any other purpose (e.g., presentation at conferences). The researcher will have access to the recording. The video recordings will be stored in a password protected digital storage device and/or a locked file cabinet. All videotapes will be destroyed one year after the study has completed.

How will I protect your privacy?

Everything I learn from you and your child is strictly confidential. Videos will be identified by ID numbers and will not include names of children or teachers. All information will be stored in a locked file cabinet in my office until my study is completed at which point it will be shredded. I will not share any information that identifies you with anyone, with one exception. My study data may be reviewed by the officials at the University of Kansas who make sure that the research is done in an ethical and legal way, and that participants are treated fairly. When I report the results of this study, you will never be named or identified in anyway. You or your child's identifiable information will not be shared unless (a) it is required by law or university policy, or (b) you give written permission. By signing this consent form, you give me permission to use and share this information, within the limits described above, at any time in the future.

If you give consent now, can you change your mind later?

Yes. You may withdraw your consent to participate in this project at any time without penalty or loss of benefits to which you are entitled, including the child care services received. You also have the right to cancel your permission to use and disclose information collected about you.



Questions about Participation?

I will be glad to answer any questions you might have now or at any time during the study – even after the study is finished. So, please feel free to contact me. If you have any additional questions about your rights as a research participant, you may call (785) 864-7429 or write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563, email irb@ku.edu.

I hope you will decide to be part of my study, and that it will be a good experience for you and your child. If you would like to participate, please sign below and keep one copy for yourself. Thanks very much for your time and assistance.

Sincerely,

Ruby Chan, M.S.
 Doctoral Student
 Dept of Special Education
 University of Kansas
 Juniper Gardens Children's Project
 444 Minnesota Ave.
 Suite 300, Kansas City, KS 66101
 785-727-3543
rubychan@ku.edu

Judith Carta, PhD
 Faculty Supervisor
 Dept of Special Education
 University of Kansas
 Juniper Gardens Children's Project
 444 Minnesota Ave.
 Suite 300, Kansas City, KS 66101
 913-321-3143
carta@ku.edu

PARTICIPANT CERTIFICATION:

I have read the information in this form, and I have had a chance to ask questions. I have received answers to any questions I had about information that will be used and shared in this study. I know that the information about me children in my classroom will be kept private. I agree to participate in this study, knowing that I can withdraw my consent if I decide to. I also agree to the use and sharing of my information as described above. By signing this, I verify that I am at least 18 years of age and have received a copy of this consent form to keep.

 Parent's Name (Please print clearly)

 Child's Name

 Parent's Signature

 Date Signed



Appendix C: Child Demographic Questionnaire

Child's name: _____ (We'll delete this once a Child ID has been assigned).

1. Child's ID _____ (Leave blank)

Today's Date: ____/____/____
Month/ Day / Year

Story Comprehension Intervention Student and Family Survey

Dear Parent: These questions will help us learn about the children in the classroom and the concerns of parents. All of this information will be kept confidential. Thanks very much for your time and your help.

If you have more than one child in this study, please fill out a separate survey for each child.

2. Your child's birth date: ____/____/____
Month/ Day / Year

3. Your child's gender: Boy ☐ Girl ☐

4. How would you describe your child's ethnicity? *Please check all that apply:*

- | | |
|---|---|
| <input type="checkbox"/> Black / African-American | <input type="checkbox"/> Hispanic / Latino |
| <input type="checkbox"/> Asian / Asian-American | <input type="checkbox"/> Native American |
| <input type="checkbox"/> White / Caucasian | <input type="checkbox"/> Other – Please describe: _____ |

5. Please indicate your relationship to the child:

- | | |
|---|---|
| <input type="checkbox"/> Mother/father | <input type="checkbox"/> Foster parent |
| <input type="checkbox"/> Grandparent | <input type="checkbox"/> Other – Please describe: _____ |
| <input type="checkbox"/> Other relative | |

6. What languages do **you** use when you talk to your child? *(Check all that apply)*

- ☐ English ☐ Spanish ☐ Other language – please specify _____

7. What languages do **other people at home** use with your child? *(Check all that apply)*

- ☐ English ☐ Spanish ☐ Other language – please specify _____

8. What languages does **your child** use when talking at home? *(Check all that apply)*

- ☐ English ☐ Spanish ☐ Other language – please specify _____

9. What language do you think your child is most comfortable with now? *(Check one)*

- ☐ English ☐ Spanish ☐ Other language – please specify _____

10. Have you ever had a concern about delays or differences in your child's development?

☐ Yes ☐ No

11. Has a care provider or teacher stated concerns about delays or differences in your child's development?

☐ Yes ☐ No

12. Has your child been identified as having developmental delays or special needs?

☐ Yes ☐ No

13. Does your child have an IEP (Individualized Education Plan)?

☐ Yes ☐ No

Appendix D: Story Questions

	Title	Literal	Literal	Literal	ID Feeling	Explain Feeling	Explain Motivation
1.	Pablo's Prickly Problem	Q1 Where was Pablo going?	Q4 What did Pablo say about his quills?	Q6 What happened at the end of the story?	Q3 How do you think Pablo felt?	Q2 Why were the other animals scared of Pablo?	Q5 Why did Suki ask Pablo to play?
2.	Snow Day for Fae	Q1 When did the story happen?	Q4 What's wrong with Bobby's sled?	Q6 What happened at the end of the story?	Q5 How do you think the friends felt?	Q3 Why were they excited?	Q2 Why were Fae's friends waiting outside?
3.	Pablo's Map Matters	Q1 Where were the friends going?	Q4 What did Pablo do to make his friends listen to him?	Q5 What happened at the end of the story?	Q3 How do you think Pablo felt?	Q4 Why were the friends surprised?	Q2 Why do you think the friends didn't want to listen to Pablo?
4.	Where's Bobby Bear	Q1 When did the story happen?	Q4 What did the blue jay say about bears?	Q6 What happened at the end of the story?	Q5 How do you think the friends felt?	Q2 Why were the friends worried?	Q3 Why did the blue jay help the friends?
5.	Suki's Selfish Saturday	Q1 Where were the friends going?	Q2 Why didn't Suki want to share her new game?	Q6 At the end, what did Suki learn?	Q3 How do you think Suki's friends felt?	Q4 Why was Suki sad?	Q5 Why did Suki decide to share her new toy with her friends?
6.	Bobby's Embarrassing Visit	Q1 Where was Bobby Bear going?	Q3 How did Bobby's friend make him feel better?	Q6 What happened at the end of the story?	Q5 How do you think Bobby felt?	Q2 Why was Bobby worried?	Q4 Why do you think Bobby's friends stayed and played with him?
7.	Fae's Nose Knows	Q1 Where were the friends going?	Q4 How did Fae find her way to grandma's house?	Q6 What happened at the end of the story?	Q3 How do you think the friends felt?	Q5 Why was grandma worried?	Q2 Why did the friends play on the way to Fae's grandma's house?
8.	Suki's Sleepover Surprise	Q1 When did the story happen?	Q2 What did Suki want to do?	Q6 What happened at the end of the story?	Q3 How do you think Suki Felt?	Q5 Why was Suki surprised?	Q4 Why do you think Suki's mom took her to the movies?
9.	Fae's Smelly Situation	Q1 Where was Fae going?	Q2 What happened when Fae grabbed the skunk?	Q6 What happened at the end of the story?	Q3 How do you think Fae felt?	Q5 Why were the friends afraid of the bees?	Q4 Why did the friends want to help Fae?

	Title	Literal	Literal	Literal	ID Feeling	Explain Feeling	Explain Motivation
10	Ellie's First Day	Q1 Where was Ellie going?	Q2 Why were the other kids laughing at Ellie?	Q6 What happened at the end of the story?	Q3 How do you think she felt?	Q5 At the beginning, Ellie was sad. Now she is happy. Why is she happy now?	Q4 Why did Ellie want to help get the ball?
11	Jungle Friends Go to the Beach	Q1 Where were the friends going?	Q2 What happened to Ellie after she fell in the water?	Q6 What happened at the end of the story?	Q3 Tanisha made a huge sandcastle. How do you think she felt?	Q4 The sand castle was ruined. Tanisha was sad. Why was Tanisha sad?	Q5 Why did Marquez want to help?
12	Marquez Monkey Around	Q1 What were Marquez and his dad doing?	Q2 What was Marquez doing?	Q6 What happened at the end of the story?	Q5 Marquez crashed into his own tree house. How do you think he felt?	Q4 Why were Marquez's friends mad at him?	Q3 Why did Marquez's friends tell him to stop monkeying around?
13	Marquez's Backwards Day	Q1 When did the story happen?	Q2 What did Marquez want to do?	Q6 What happened at the end of the story?	Q4 How do you think the friends felt?	Q5 Why was Marquez's mother worried?	Q2 Why did Leo tell Marquez to turn around?
14	Leo Lost His Roar	Q1 What was Leo going to do the next day?	Q2 What happened when Leo tried to roar?	Q6 What happened at the end of the story?	Q3 If Leo couldn't sing in the school play, how do you think he would feel?	Q5 Leo can let out a loud roar. He was excited. Why was he excited?	Q4 Why did the friends come to see him?
15	Leo's Brave Face	Q1 Where was Leo going?	Q2 What did the dentist tell Leo?	Q6 What happened at the end of the story?	Q4 How do you think Leo felt?	Q2 Why was Leo afraid to go to the dentist?	Q3 Why did Ellie want go with Leo?
16	Ellie Get's Stuck	Q1 What were the friends doing?	Q2 What happened to Ellie when she tried to jump between the trees?	Q6 What happened at the end of the story?	Q5 How do you think she felt?	Q3 Why was Marquez worried?	Q4 Why did the friends help Ellie?

Appendix E: Story Script Sample

Pablo's Prickly Problem Child ID: _____ Date: _____ 1st Read / 2nd Read Score: _____ / 22

Q1. Where was Pablo going? (Literal - Setting)		
Correct Response (2 points)	Correct Response Feedback	
<p><i>Criteria:</i> Correct and clear response that identifies the setting where the character is going</p> <p><i>Examples:</i> He is going to school</p>	That's right. He is going to school.	
Partial Response (1 point)	Prompt	a) Feedback for correct response
<p><i>Criteria:</i> Response refers to a setting or a characteristic or action that is somewhat related to the story</p> <p><i>Examples:</i> Class; sees his friends / teachers</p>	<p>Pablo is going to school. (Modeling)</p> <p>Remember, Pablo's mother told him that school starts today. Pablo is going to school. (Explanation)</p>	That's right. Pablo is going to school.
Inappropriate Response (0 point)		b) Feedback for incorrect / NR / IDK
<p><i>Criteria:</i> Response refers to a setting that is not related to the story</p> <p><i>Examples:</i> Going to the park</p>	<p>Where was Pablo going? (Response Prompting)</p> <p>Was he going to school or to the park? (Binary choice)</p>	<p>Pablo was going to sch____(school). (Cloze)</p> <p>Pablo is going to school. (Modeling)</p>
No Response (NR) / IDK (0 point)		

Q2. Why were the other animals scared of Pablo? (Inferential – Explain character's feeling)		
Correct Response (6 points)	Correct Response Feedback	
<p><i>Criteria:</i> Correct and clear response that incorporates story and background knowledge to make inference of the character's feeling (i.e., identify the cause of the feeling)</p> <p><i>Examples:</i> He might hurt them</p>	<p>That's right, they thought Pablo's quills might hurt them.</p> <p>See, quills are sharp and pointy like needles. It's scary. (point finger to Pablo's quills)</p>	
Partial Response (3 point)	Prompt	a) Feedback for correct response
<p><i>Criteria:</i> Response refers to information from the story only; OR provides overly simplistic explanation</p> <p><i>Examples:</i> Pablo has quills; sharp fur; needles; spikes; he pokes; he is different; he is strange; he has "pokies"; he is a porcupine</p>	<p>Because Pablo's quills might hurt them. (Modeling)</p> <p>The other animals were scared because they thought Pablo's quills might hurt them. See, quills are sharp and pointy like needles. (point finger to Pablo's quills) (Explanation)</p>	<p>Yes. The other animals were scared because they thought Pablo's quills might hurt them.</p> <p>See, quills are pointy and sharp like needles. It's scary. (point finger to Pablo's quills)</p>
Inappropriate Response (0 point)		b) Feedback for incorrect / NR / IDK
<p><i>Criteria:</i> Response does not explain the character's feeling</p> <p><i>Examples:</i> They don't like him</p>	<p>Tell me, why were the other animals scared of Pablo? (Response Prompting)</p> <p>Is it because Pablo's quills will hurt them or is it because his quills are soft? (Binary choice)</p>	<p>Pablo's quills might h____(hurt) them. (Cloze)</p> <p>Pablo's quills might hurt them (Modeling)</p> <p>See, quills are pointy and sharp like needles. It's scary. (point finger to Pablo's quills)</p>
No Response / IDK (0 point)		

Q3. How do you think Pablo felt?		(Inferential – ID character's feeling)
Correct Response (4 points)	Correct Response Feedback	
<i>Criteria: The emotion word specifically conveys the character's negative feeling</i> <i>Examples: Pablo is sad, upset, lonely</i>	I think so too. No one wants to play with him. Pablo must be feeling sad. If you want to play with your friends, but your friends don't want to play with you, how would you feel?	
Partial Response (2 point)	Prompt	a) Feedback for correct response
<i>Criteria: Response somewhat conveys the character's emotion, but does not specifically identify the character's negative feeling (i.e., sad)</i> <i>Examples: Crying; doesn't like his friend</i>	Pablo was sad. <i>(Modeling)</i> Look at Pablo. No one wants to play with him. <i>(Explanation)</i> Tell me, how do you think Pablo felt? <i>(Response Prompting)</i>	I think so, too. No one wants to play with him. Pablo must be feeling sad. If you want to play with your friends, but your friends don't want to play with you, would you feel sad? <i>(Relating to child's experience)</i>
Inappropriate Response (0 point)	Do you think he feel happy or sad ? <i>(Binary choice)</i>	b) Feedback for incorrect / NR / IDK
<i>Criteria: Response is not related to the character's feeling</i> <i>Examples: Happy; play by himself</i>		Pablo was feeling s__(sad). <i>(Cloze)</i> If you want to play with your friends, but your friends don't want to play with you, how would you feel? <i>(Relating to child's experience)</i>
No Response / IDK (0 point)		

Q4. What did Pablo say about his quills?		(Literal – Character's attempt to solve the problem)
Correct Response (2 points)	Correct Response Feedback	
<i>Criteria: Correct and clear response that identifies the character's action</i> <i>Examples: To protect him; keep him safe</i>	Yes. Pablo said that his quills are there to protect him. I think it is a good idea that Pablo tells the other animals about his quills. This helps the other animals to understand that his quills will not hurt them. So they won't be scared of him.	
Partial Response (1 point)	Prompt	a) Feedback for correct response
<i>Criteria: Response somewhat identifies the character's action</i> <i>Examples: He won't hurt them</i>	Pablo said that his quills are there to protect him. To keep him safe. <i>(Modeling)</i> Remember hit was hit by the ball? The ball went pop, but Pablo didn't get hurt. His quills protected him. <i>(Explanation)</i>	Yes. Pablo said that his quills are there to protect him. I think it is a good idea that Pablo tells the other animals about his quills. This helps the other animals to understand that his quills won't hurt them. So they won't be scared of him.
Inappropriate Response (0 point)	What did Pablo say about his quills? <i>(Response Prompting)</i> Were the quills to protect him or to hurt others ? <i>(Binary choice)</i>	b) Feedback for incorrect / NR/ IDK
<i>Criteria: Response is not related to character's action</i> <i>Examples: He wants to be friends; he likes them</i>		His quills were to pr____(protect) him. <i>(Cloze)</i> I think it is a good idea that Pablo tells the other animals about his quills. This helps the other animals to understand that his quills won't hurt them. So they won't be scared of him.
No Response / IDK (0 point)		

Q5. Why did Suki ask Pablo to play? (Inferential – Explain character's motivation)	
Correct Response (6 points)	Correct Response Feedback
<p><i>Criteria:</i> Correct and clear response that incorporates story and background knowledge to make an inference of the character's motivation</p> <p><i>Examples:</i> She wanted to be friends; she is not scared about Pablo's quills anymore; to make Pablo feel better</p>	I think so, too. Suki asked Pablo to play because she wanted to be friends with Pablo. Suki wasn't scared of Pablo anymore. She wanted to be friends with him.
Partial Response (3 point)	Prompt
<p><i>Criteria:</i> Response refers to information from the story only; OR provides a characteristic to explain the character's action; OR provides an overly simplistic explanation</p> <p><i>Examples:</i> She wanted to have fun together; Pablo was sad; she is nice; he won't hurt them; he said quills were to protect him</p>	<p>Suki asked Pablo to play because she wanted to be friends with Pablo. <i>(Modeling)</i></p> <p>Pablo told his friends his quills were to protect him. Suki wasn't scared of Pablo anymore. She wanted to be friends with him. <i>(Explanation)</i></p>
Inappropriate Response (0 point)	a) Feedback for correct response
<p><i>Criteria:</i> Response does not explain the character's motivation</p> <p><i>Examples:</i> She wanted to play; excited</p>	<p>Suki asked Pablo to play because she wanted to be friends with Pablo. Suki wasn't scared of Pablo anymore. She wanted to be friends with him.</p>
No Response / IDK (0 point)	b) Feedback for incorrect / NR / IDK
	<p>Because she wanted to be f__(friends). <i>(Cloze)</i></p> <p>Suki wasn't scared of Pablo anymore. She wanted to be friends with him.</p>

Q6. What happened at the end of the story? (Literal – Ending)	
Correct Response (2 points)	Correct Response Feedback
<p><i>Criteria:</i> Correct and clear response that identifies the consequence OR the resolution described in the story</p> <p><i>Examples:</i> They were friends; played together</p>	<p>That's right. Pablo, Suki, Bobby Bear, and Fae all became friends and played together.</p> <p><i>(Pointing to the illustration on the page)</i></p>
Partial Response (1 point)	Prompt
<p><i>Criteria:</i> Response somewhat identifies the consequence OR the resolution, but unclear or incomplete</p> <p><i>Examples:</i> Share toys;</p>	<p>The became friends with Pablo <i>(Modeling)</i></p> <p>Look at them <i>(pointing to the illustration)</i>. Pablo, Suki, and Bobby Bear played together. They all became friends. <i>(Explanation)</i></p>
Inappropriate Response (0 point)	a) Feedback for correct response
<p><i>Criteria:</i> Response is not part of the consequence or resolution described in the story or described emotion from end of the story</p> <p><i>Examples:</i> Happy; went home</p>	<p>That's right. Pablo, Suki, Bobby Bear, and Fae all became friends and played together.</p> <p><i>(Pointing to the illustration on the page)</i></p>
No Response / IDK (0 point)	b) Feedback incorrect / NR / IDK
	<p>They all became fri__(friends). <i>(Cloze)</i></p> <p>Pablo, Suki, Bobby Bear, and Fae all became friends and played together.</p>

Appendix F: Fidelity of Implementation Checklist

Story Comprehension Intervention <i>Fidelity of Implementation Checklist</i>		Child ID _____ Book _____ Observer _____	Date _____ 1 st Read 2 nd Read Interventionist _____
Question 1			
a.	Did the interventionist say <i>Comprehension Question 1</i> ? <input type="checkbox"/> Yes, exactly <input type="checkbox"/> Paraphrased (major changes) <input type="checkbox"/> Paraphrased (minor changes) <input type="checkbox"/> No	0	1
b.	Did the interventionist embedded <i>Comprehension Question 1</i> at the exact point where it should be asked? <input type="checkbox"/> Yes <input type="checkbox"/> No	0	1
c.	If the child provided a correct response, did the interventionist say the correct response feedback? <input type="checkbox"/> Yes, exactly <input type="checkbox"/> Paraphrased (major changes) <input type="checkbox"/> Paraphrased (minor changes) <input type="checkbox"/> No	0	1
d.	If the child gave an inappropriate response, no response, or I don't know, did the interventionist give the following prompt? <input type="checkbox"/> Yes, exactly <input type="checkbox"/> Paraphrased (major changes) <input type="checkbox"/> Paraphrased (minor changes) <input type="checkbox"/> No	0	1
e.	After being prompted once, did the interventionist model the answer if the child continued to give an inappropriate response, or no response, or I don't know? <input type="checkbox"/> Yes, exactly <input type="checkbox"/> Paraphrased (major changes) <input type="checkbox"/> Paraphrased (minor changes) <input type="checkbox"/> No	0	1
Question 2			
a.	Did the interventionist say <i>Comprehension Question 2</i> ? <input type="checkbox"/> Yes, exactly <input type="checkbox"/> Paraphrased (major changes) <input type="checkbox"/> Paraphrased (minor changes) <input type="checkbox"/> No	0	1
b.	Did the interventionist embedded <i>Comprehension Question 2</i> at the exact point where it should be asked? <input type="checkbox"/> Yes <input type="checkbox"/> No	0	1
c.	If the child provided a correct response, did the interventionist say the correct response feedback? <input type="checkbox"/> Yes, exactly <input type="checkbox"/> Paraphrased (major changes) <input type="checkbox"/> Paraphrased (minor changes) <input type="checkbox"/> No	0	1
d.	If the child gave an inappropriate response, no response, or I don't know, did the interventionist give the following prompt? <input type="checkbox"/> Yes, exactly <input type="checkbox"/> Paraphrased (major changes) <input type="checkbox"/> Paraphrased (minor changes) <input type="checkbox"/> No	0	1
e.	After being prompted once, did the interventionist model the answer if the child continued to give an inappropriate response, or no response, or I don't know? <input type="checkbox"/> Yes, exactly <input type="checkbox"/> Paraphrased (major changes) <input type="checkbox"/> Paraphrased (minor changes) <input type="checkbox"/> No	0	1
Question 3			
a.	Did the interventionist say <i>Comprehension Question 3</i> ? <input type="checkbox"/> Yes, exactly <input type="checkbox"/> Paraphrased (major changes) <input type="checkbox"/> Paraphrased (minor changes) <input type="checkbox"/> No	0	1
b.	Did the interventionist embedded <i>Comprehension Question 3</i> at the exact point where it should be asked? <input type="checkbox"/> Yes <input type="checkbox"/> No	0	1
c.	If the child provided a correct response, did the interventionist say the correct response feedback? <input type="checkbox"/> Yes, exactly <input type="checkbox"/> Paraphrased (major changes) <input type="checkbox"/> Paraphrased (minor changes) <input type="checkbox"/> No	0	1
d.	If the child gave an inappropriate response, no response, or I don't know, did the interventionist give the following prompt? <input type="checkbox"/> Yes, exactly <input type="checkbox"/> Paraphrased (major changes) <input type="checkbox"/> Paraphrased (minor changes) <input type="checkbox"/> No	0	1
e.	After being prompted once, did the interventionist model the answer if the child continued to give an inappropriate response, or no response, or I don't know? <input type="checkbox"/> Yes, exactly <input type="checkbox"/> Paraphrased (major changes) <input type="checkbox"/> Paraphrased (minor changes) <input type="checkbox"/> No	0	1

Note: Yes, Paraphrased with *minor* changes = 1
 No, Paraphrased with *major* changes = 0

Question 4

- a. Did the interventionist say *Comprehension Question 4*? 0 1
☐ Yes, exactly ☐ Paraphrased (major changes)
☐ Paraphrased (minor changes) ☐ No
- b. Did the interventionist embed *Comprehension Question 4* at the exact point where it should be asked? 0 1
☐ Yes ☐ No
- c. If the child provided a correct response, did the interventionist say the correct response feedback? 0 1
☐ Yes, exactly ☐ Paraphrased (major changes)
☐ Paraphrased (minor changes) ☐ No
- d. If the child gave an inappropriate response, no response, or I don't know, did the interventionist give the following prompt? 0 1
☐ Yes, exactly ☐ Paraphrased (major changes)
☐ Paraphrased (minor changes) ☐ No
- e. After being prompted once, did the interventionist model the answer if the child continued to give an inappropriate response, or no response, or I don't know? 0 1
☐ Yes, exactly ☐ Paraphrased (major changes)
☐ Paraphrased (minor changes) ☐ No

Question 5

- a. Did the interventionist say *Comprehension Question 5*? 0 1
☐ Yes, exactly ☐ Paraphrased (major changes)
☐ Paraphrased (minor changes) ☐ No
- b. Did the interventionist embed *Comprehension Question 5* at the exact point where it should be asked? 0 1
☐ Yes ☐ No
- c. If the child provided a correct response, did the interventionist say the correct response feedback? 0 1
☐ Yes, exactly ☐ Paraphrased (major changes)
☐ Paraphrased (minor changes) ☐ No
- d. If the child gave an inappropriate response, no response, or I don't know, did the interventionist give the following prompt? 0 1
☐ Yes, exactly ☐ Paraphrased (major changes)
☐ Paraphrased (minor changes) ☐ No
- e. After being prompted once, did the interventionist model the answer if the child continued to give an inappropriate response, or no response, or I don't know? 0 1
☐ Yes, exactly ☐ Paraphrased (major changes)
☐ Paraphrased (minor changes) ☐ No

Question 6

- a. Did the interventionist say *Comprehension Question 6*? 0 1
☐ Yes, exactly ☐ Paraphrased (major changes)
☐ Paraphrased (minor changes) ☐ No
- b. Did the interventionist embed *Comprehension Question 6* at the exact point where it should be asked? 0 1
☐ Yes ☐ No
- c. If the child provided a correct response, did the interventionist say the correct response feedback? 0 1
☐ Yes, exactly ☐ Paraphrased (major changes)
☐ Paraphrased (minor changes) ☐ No
- d. If the child gave an inappropriate response, no response, or I don't know, did the interventionist give the following prompt? 0 1
☐ Yes, exactly ☐ Paraphrased (major changes)
☐ Paraphrased (minor changes) ☐ No
- e. After being prompted once, did the interventionist model the answer if the child continued to give an inappropriate response, or no response, or I don't know? 0 1
☐ Yes, exactly ☐ Paraphrased (major changes)
☐ Paraphrased (minor changes) ☐ No

Note: Yes, Paraphrased with *minor* changes = 1
 No, Paraphrased with *major* changes = 0

_____ No. of Items Scored Correct
 _____ No. of Items Administer
 _____ % Fidelity of Administration
 [(No. of Items Scored Correct / No. of Items Administer) x 100]

Appendix G: Intervention and Assessment Schedule

[illegible][illegible]